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THE HUMAN BREAST: A PLEA FOR WELL-DIRECTED TREATMENT BASED ON MORE ACCURATE DIAGNOSIS*

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One of the great advances today in the profession of medicine is the changing attitude concerning health and disease. Gradually the emphasis is being placed upon health maintenance rather than upon the cure of disease. Coincident with this comes a nation-wide campaign along health lines, the hygienists advocating examination at definite intervals for the early detection, recognition and treatment of disease.

In the industrial and mercantile world the value of good health, from an economic standpoint, is being recognized, and there is a tendency to apply the efficiency expert in medicine, surgery and sanitation, as well as in various business and industrial pursuits. Many insurance companies, merely as a matter of business, are retaining corps of physicians and nurses to help prevent serious illness and possible fatality by the early detection of disease. The United States Bureau of Mines is constantly making experiments in an effort to lower sickness and mortality rates among miners, factory workers, and laborers of all classes. National, state and local boards of health are repeatedly stressing the importance of preventive measures. In special fields the American Association of Cancer Prophylaxis is one of the many organizations doing very useful service. Other agencies are emphasizing these points, but the examples quoted are sufficient to prove the trend of our times.

Thus, from these many sources, the public is urged to consult the physician at any deviation from the normal—in fact, it is asked to come from time to time, even though there is no evidence of disease. It is recognizing the force of these arguments and is slowly responding. The patients who come justly demand a recognition of all the aspects of the individual case.

The medical profession must be keenly alive to the importance of developing its ability to diagnose cases in their early stages. At times it has the unfortunate attitude of under-estimating minor conditions and mentally pronouncing the symptoms merely those of hysteria. Physicians should not be so engrossed with acute illnesses, acute conditions, and more advanced pathology, as to fail to realize the importance of a thorough examination of all patients who seek medical care and attention, no matter how trivial the complaint may be for which they come. Early detection of an almost hidden danger signal may result in sparing the patient much future mental and physical suffering.

There is also the danger of over-estimating, as well as under-estimating, pathological conditions. Many can remember the period of the massacre of the ovaries, later of the appendix, then of the tonsils and colon, and more recently of the teeth. Is it possible that in the attempt to prevent cancer there may be the risk of another period of unnecessary sacrifice—that of the human breast? By way of illustration, there is the patient who discovers a lump in her breast and delays her visit to the physician by visioning mentally over his door, a sign which reads, "Abandon hope of escaping a terrible operation, all ye who enter here." On examination the physician may fail to weigh in the balance all the non-malignant possibilities involved, and permit her to leave his office with the belief that operation is the only means of saving her life. Accepting this verdict, the patient may be subjected to an unnecessary mutilating operation for a benign condition.

In contrast, there is the patient who receives, but fails to accept, the advice of radical operation, and who drifts from physician to physician or

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from quack to quack for help. When the condition is a benign one the patient may be cured of a so-called "cancer" in spite and not because of the physician's advice, and therefore may be added to the host of those who spare no effort to influence the laity against the recognized profession. She points to herself as a living example of escape from cruel surgery. For this reason, the blanket rule of prescribing radical operation in all doubtful cases may act as a deterrent to those who most need care and observation. Frequently, the short delay in consulting the necessary authority constitutes the difference between the benign and the malignant stages of a tumor.

The public should be taught to come; taught that any lump is a great danger; that to consult a physician is the only safe method; that an examination does not absolutely mean a radical operation. The profession must realize its responsibility and seek to deal with the individual case on the merits of the conditions present, in the light of all that is known to medical science. It should be equipped with all the facts—not those of ten years ago, not those of yesterday, but the facts of today, and adequately be prepared to meet those seekers after truth by having at its command all the established current data of the profession, and then only after deliberate consideration of all the evidence obtainable, render the verdict.

Medical knowledge, concerning breast conditions, is not sufficiently definite to warrant many dogmatic conclusions. There is an accumulation of material concerning which there is much academic disagreement. Information must be unified, standardized, and placed before the laity in a form which is thoroughly comprehensible. Only such vital phases of medical subjects as have received the practically unanimous approval of the profession should be released for the guidance of the general public. It is an unfortunate fact that some of the most eminent authorities disagree on essential as well as on non-essential points. For example, one surgeon states "that *every lump* which appears in a woman's breast *should be removed forty-eight hours after it is discovered.*"

Another authority says: "When the question arises between chronic mastitis and carcinoma it is usually the safest procedure to *remove the breast,* and . . . *if no malignant process is found, one has merely removed a menace to the patient.*"

In comparison, a well-known author writes:

Those who have served apprenticeships in the laboratories of hospitals will admit, and all men of experience know, that frequently radical operation is performed for simple lesions. I have observed this in cases of simple fibro-adenomas, interstitial mastitis, and simple lobulation in a developing breast. Once I examined a pair of breasts, removed from a young woman by a specialist in diseases of children, and to this day I have been unable to find any excuse whatever for their removal. The doctor was in *doubt.* * * * I believe it is a greater error to subject a young woman with a simple benign lesion to a radical operation than it is to fail to extend to a woman the 20% chance in case of actual carcinoma. * * * The platitude that it is better to sacrifice a dozen suspected breasts than to overlook a single case of carcinoma has long served as a cloak for ignorance of the finer pathological changes in the gland.

Recently, a leading pathologist made the statement

That he based more faith on clinical methods, carefully applied by a skillful person, than on other means of diagnosis at the present time. He said it was a strange fact that the clinician always insisted that the laboratory methods be applied to diagnosis, while the laboratory worker favored clinical methods —palpation, inspection and observation for a period of time, and that he had spent a great deal of time in the laboratory and preferred to base his diagnosis upon careful clinical methods. There was, he supposed, a common ground where laboratory worker and clinician would some day meet. * * * He added: A physician does not impress other physicians or the public by applying the blanket rule to all breast tumors and insisting that every lump in the breast be excised. In distinguishing between malignant and benign tumors of the breast it is important to take into consideration the age of the patient, location of the lump in the breast, consistency of the tumor, history of the organ and all features of the case and in this way one can usually reach the diagnosis. The failure to recognize cancer is often due to lack of proper physical examination.

However, the following radical views from recognized authorities, have also been published:

Cases of *secondary hyperplasia should be considered as precancerous,* and while they do not require so extensive an operation as the removal of the underlying muscles together with the axillary glands, yet *no portion of the mamma should be left.*

In the surgery of mammary tumors; I am convinced, however, that to insure the greatest good to the greatest number, would be to *advocate the removal of every tumor bearing breast.*

Every benign tumor of the breast should be re-

moved before it has an opportunity to become carcinomatous. In other words, *it should be removed as soon as recognized.*

At a recent medical meeting a surgeon said:

That he *would today submit every portion of a breast with a blue dome cyst to careful microscopic examination,* and any breast, it made no difference what the gross appearance, where there existed one or a dozen cysts, regardless of the size of the cysts, should always be examined with the microscope. He had seen cysts removed and the patient come back with cancer of the breast.

In answer to this statement, another surgeon responded:

That he did not care how the diagnosis was made, but if a whole breast must be had for examination, how could the breast be saved? The "take out" policy would mean the mutilation of every woman with a lump in her breast.

The foregoing are but a few of the radical and conservative statements, the pros and cons of which must be carefully weighed before any definite conclusion can be reached. To radically remove the breast in all doubtful cases eliminates the development of malignancy for all time, and therefore safeguards the surgeon's reputation, but is this attitude a just or a scientific one? Considering the patient and remembering the number of unfortunate ones who have suffered unnecessary breast amputations, it seems imperative to say that the radical breast operation should be performed only after very careful consideration of all signs and symptoms.

Many patients suffering from cancer come too late, but it is equally true that there are changes of the breast simulating cancer, and these must be taken into consideration before making an accurate diagnosis. The physician must be ever on the watch for the frequent non-malignant breast conditions. Abscess, actinomycosis, catarrh, eczema, Hodgkin's disease, intestinal and other toxemias, ovarian disease, menstruation, disturbed endocrine function, hyperplasia, mastitis, rheumatism, senile hypertrophy, congenital deformity, haematoma, traumatic fat necrosis, syphilis, tuberculosis, simple lobulation in the gland of the young maturing female, and the lumps which are prone to remain in the mammae of the child-bearing woman after lactation has ceased, are causes which often create suspicious masses in the breast region. To these may be added the benign tumors, as adenoma, chondroma, cysts, fibroma, lipoma, myxoma, osteoma, and their combinations, adeno-cystoma, fibro-adenoma, cystic-adenoma, etc.

During years of practice the writer has examined large numbers of benign breast conditions, many of which were referred to him as malignant. Frequently, he has found it necessary to reduce an inflammatory condition before definitely deciding whether or not there was an underlying cancerous process. Some of the patients had retraction of one or both nipples, and others had one breast higher or larger than the other. By obtaining a full history and with careful observation these conditions were proved to be of congenital origin, and not in any way pathological.

In a recent tabulation of the first 2,000 alphabetically arranged histories in the author's office files, the analysis showed 225 cases of benign breast conditions, and 85 cases of mammary malignancy. None of those diagnosed as benign has, to the writer's knowledge, developed malignancy and all those clinically diagnosed as cancer were proved to be such by pathological examination of the specimen. The following illustrative cases are reported in brief, covering only the points relevant to this paper, not because of the unusual aspects of the cases, but to emphasize the fact that there are many pathological changes in the mammae resulting from disorders in other parts of the body which, without careful examination, might be mistaken for cancer.

NOTE: In a paper read before the American Association of Obstetricians, Gynecologists and Abdominal Surgeons in September, 1920, I spoke of the many breast lumps caused by stasis and read reports of twenty-five cases, some of which had been under observation from fifteen to eighteen years, where the lumpy condition and even well defined tumors of the breast had disappeared under treatment for intestinal toxemia.

1. *Intestinal stasis cause of lumpy breasts*—L. F.: Age 35; female; married; 2 children, nursed both.

Patient consulted me March, 1920, for retraction of and eczematous discharge from left nipple; considerable elongation and lumpiness of the upper, outer quadrant of the breasts; two small glands felt in left axilla.

Previous to consulting me the patient had seen two well-known surgeons, one of whom had advised radical operation, stating to her "that there was no cancer but that the breasts were no good and she might as well have them off." This surgeon also wrote to the family physician: "I would urgently advise removal of both breasts."

After careful examination of the patient, and weighing well all the points, I was convinced that radical

operation was not called for and accordingly recommended as follows: "Under no circumstances at the present time, without a fair trial of preliminary measures, would I submit to operation. After a month of treatment, we can definitely determine what progress has been made."

I then prescribed a brassiere to relieve all pull on the upper, outer quadrant; bicarbonate of soda baths; milk of magnesia internally; colonic irrigations; tonics; wholesome diet; bland ointment on nipples and large quantities of alkaline water, at the same time impressing the importance for frequent examination.

July, 1920, the patient returned for an examination. The lumps in the axilla had disappeared entirely; the right breast was less lumpy; the left breast better; the discharge materially lessened in amount and less irritating to the skin. The eczema about the areola had disappeared; the feel of the breast was almost normal and the general condition of the patient good.

The results already secured in this case make it clear that we have to deal with an inflammatory and not a malignant process.

2. *Stasis breasts.* C. B.[1]: Age 37; female; married; no pregnancy.

Patient consulted me February, 1914, for a lumpy condition of the left breast. There was also a mass in the right mamma which a surgeon, whom the patient visited, declared malignant. As the tumor in this breast was well defined, I advised conservative operation. This was done and the pathological report proved my diagnosis of benign neoplasm correct. After operation on the right breast, and medical treatment for intestinal toxemia, the left breast cleared and in July, 1920, the patient reported both breasts normal and her general condition excellent.

3. *Stasis breasts.* A. B.[2]: Age 25; female; widow; 2 children; nursed both.

Was always constipated and in March, 1915, began to have severe pain in the right lower quadrant of abdomen. In December, 1915, a lumpy condition was noticed in left breast, with bloody discharge from nipple, which was present when I saw the patient in February, 1916. There were also glandular lumps in the upper, outer quadrant of the breast; distinct tenderness in right iliac fossa, along the head of the cecum and over the appendix. X-Ray examination proved this a case of chronic intestinal stasis. After abdominal operation there was a slight discharge from the nipple for one week, after which breast cleared up. Patient is now in perfect health, and breasts are absolutely normal.

Previous to consulting me, this case was diagnosed by several clinicians as cancer, and radical and immediate amputation of the breast advised.

NOTE: It should be remembered that in a large majority of cases some milk remains in the breasts of women who have borne children and especially in those who have nursed them. It is not the discharge that is important, but the character of the discharge.

4. *Congenital malformation of the breast.* H. S.[3]: Age 30; female; single.

Patient was operated upon in 1915 for intestinal stasis associated with a general lumpy condition of the breasts. After abdominal operation, the lumps in breasts disappeared with the exception of an enlargement of the second costal cartilage under the right breast, which, previous to seeing me, had been diagnosed as a definite neoplasm. The characteristic feel of this might easily have led one to believe that it was an extension of a cancerous process from the breast. However, after careful observation, I diagnosed it as a congenital malformation. It had not changed in either size or form during my five years' treatment of the case, and when I last saw her, both breasts were normal except for this slight deformity.

5. *Hodgkins Disease of the Breast.* E. N.[4]: Age 32; female; married.

This patient, two years before consulting me, had noticed an enlargement of the thyroid gland and about a year later a tumor appeared on the right side of the neck and another at the upper, outer margin of the right breast, extending into axilla. Six months previous to operation, a piece was taken from the tumor in the neck at a hospital in a neighboring city. The report was lympho-sarcoma, and the case considered beyond the hope of cure by operation. Patient grew steadily worse and exhibited pressure symptoms in the neck. As a palliative procedure, I removed tumors as far as possible, with extensive ligation of large vessels, and applied radium. The pathological report proved the case Hodgkin's Disease. The patient lived for several years, but ultimately died of the disease which had extended into many organs.

6. *Lumpy condition of breast as result of tonsil infection.* S. K.[5]: Age 31; female; married; no children.

First consulted me in January, 1917, for lumpy condition of both breasts. After operation for intestinal stasis breasts cleared entirely and patient made excellent recovery.

In 1919 she had influenza and later developed repeated attacks of infection of the throat. During these attacks the breasts became lumpy and showed a condition of mastitis throughout, as a result of the tonsil infection.

7. *Apparent malignant recurrence.* E. M.: Age about 70; female; single.

In 1909 I removed the right breast of this patient for carcinoma; the left breast had been removed some years previous. Later an appendectomy was performed.

In 1912 small nodules developed on the chest wall

1. Preliminary reports in "Cancer Problem" and "Benign Mammary Tumors and Intestinal Toxemia."

2. Preliminary report in "Woman's Medical Journal," May, 1917, and "Benign Mammary Tumors and Intestinal Toxemia."

3. Preliminary report in "Benign Mammary Tumors and Intestinal Toxemia."

4. Preliminary report in "Conservation of the Human Breast," Int. Jl. Surgery, July, 1915.

5. Preliminary report in "Benign Mammary Tumors and Intestinal Toxemia."

over several of the costo-chondral articulations, near the scars of the breast operations, more marked on the right side. These were considered by several as malignant recurrences. The nodules were diffuse, very tender and painful, especially in cold and damp weather. I made a diagnosis of systemic condition, and not of malignant recurrence. The patient was kept under close observation and given treatment for acidosis. The lumps disappeared entirely, and the patient is today perfectly well.

8. *Eczema of the nipple.* K.[6]: Age 26; female; single.

Patient had lumpy and painful condition of right breast due to pyogenic infection from eczematous ulcer of the nipple, which had persisted for some weeks. Because of the appearance of the breast and enlargement of the axillary glands, her doctor advised removal of the organ for carcinoma. A few days of proper treatment caused the eczema and lumpy condition of the breast to disappear.

9. *Syphilis of the breast.* P.[7]: Age 38; female.

Patient gave a history of having been well and strong until two years before consulting me, when she commenced having pain, more or less continuous, in the upper part of the right breast. Examination showed enlargement of the sternal ends of the second, third and fourth ribs on the same side. This was verified by x-ray examination according to which the pleura and lungs were not involved, and the bone changes not sufficiently characteristic to justify stating whether this was sarcoma or some benign growth. Wassermann and Noguchi tests both proving positive, the patient was placed on iodid and mercury and later given salvarsan followed by mixed treatment. The enlargements, under these measures, disappeared and five years later the patient's physician reported her perfectly well.

10. *Pelvic condition causing lumpy breasts.* A. S.[8]: Age 32; female; single.

Two years before seeing me patient had an operation for a uterine condition. She consulted me July, 1919, for irritation of the bladder, severe pain in back and ovarian region, together with a lumpy condition of both breasts.

Laparotomy was performed, and I found a much enlarged uterus with a considerable number of fungosities, a mass of adhesions which extended back of the uterus down to the cul de sac, a fibro-cystic right ovary, deep in the pelvic cavity, surrounded by a mass of omentum tightly adherent to the uterus in front and to the rectum behind. The mass was about the size of two hen eggs. The operative conditions were corrected, and in August, 1920, the patient reported that the lumps in the breasts had disappeared entirely; she had gained twenty-seven pounds since the operation and was in excellent condition.

11. *Tuberculosis of the breast diagnosed as sarcoma.* M. C.[9]: Age 55; female; married; five children.

Examined patient who for three years had a hard nodular swelling in the axilla, with involvment of the breast, and who, during these years, had been operated on for this breast condition twice—a fistula in the axilla following the first operation. When I first saw the case, the mass was nearly the size of the entire breast—painful on pressure. The arm, too, was painful and much enlarged. Two specialists had declared the case advanced sarcoma, one physician telling her family that she could not live beyond a few weeks. The patient was given morphine so that she might be spared as much suffering as possible.

After careful examination I diagnosed the case as inflammatory—possibly tuberculous—and decided to give her a chance by extensive operation. This was done and pathological report proved the diagnosis of tuberculosis. After an uninterrupted recovery she was discharged from the hospital in two weeks.

Two years later she was reported as well, but since that time I have lost track of her.

12. *Disturbed endocrine function causing lumpy breasts.* L. N.: Age 42; female; married; 1 child.

Patient suffered from neurasthenia and hypothyroidism. Her weight increased until she averaged two hundred pounds. There were lumps in both breasts, and pressure on the mammae caused a certain amount of fluid to exude. The history of bloating, the added fat, the heart symptoms and the pigmentation and dryness of the skin all pointed to a disturbance of the internal secretions. Thyroid and multiple glandular secretion were administered and the excessive fat reduced. As long as the patient persisted in the treatment, the lumps in the breast disappeared, but on suspension of the medication they invariably recurred.

In August, 1920, the patient wrote that she was continuously on the multiglandular treatment, that she was in excellent condition, and that her breasts were perfectly normal.

NOTE: In connection with this case, it is an interesting observation that the masses in the mammae, which were relieved on the basis of endocrine dyscrasia, were in the same relation to the gland—upper, outer quadrant—as those resulting from stasis or frequently seen during the catamenia.

Not only should the surgeon endeavor to be so qualified as to recognize the benign and malignant growths of the breast, as far as is clincally possible, but he should also have a very definite knowledge of the principles underlying the methods of examination. He should bear in mind the fact that the very life of his patient may depend upon the way he manipulates the tumor mass. The patient herself, or the solicitous friend, may do damage by manipulating the

6. Preliminary report in "Conservation of Human Breast," Int. Jl. Surgery, July, 1915.

7. Preliminary report in "Conservation of the Human Breast," Int. Jl. Surgery, July, 1915.

8. Preliminary report in "Benign Mammary Tumors and Intestinal Toxemia."

9. Preliminary report in "The Cure of the 'Incurable'," American Medicine, July, 1915.

breast, as may the doctor when he examines the case, or the surgeon when he operates. Nature erects natural barriers to protect the various cells of the body, but pressure along the blood vessels or along the lymphatic glands may cause malignant growths to reproduce themselves in locations other than the original site, by extension through these channels.

Despite all that has been written on the subject of biopsy, it is but a short time since the Board of Health of a large city requested the profession to cut into suspicious lesions—without one word of caution about protecting the patient against the possible spread of metastoses—and submit small particles for examination, promising that a report on the tissue would be forthcoming in from 24 to 36 hours. Because of this attitude it seems necessary to emphasize once more the extent to which a patient's life may be jeopardized by biopsy for the purpose of pathological diagnosis. Cutting into a neoplasm of the breast, or any other part of the body, may cause such a dissemination of the cancer, if cancer be present, that subsequent operation will be of no avail. When the growth is at a difficult site, so that it cannot be completely removed and pathological examination is necessary, the danger will be diminished by incising with the cautery knife or cauterizing the cut surface — destroying all the cells in the neighborhood and blocking the avenues of extension. A safer procedure is to examine the specimen by the frozen section method. However, there is also a chaotic state in this particular field, for some pathologists refuse to make a diagnosis on frozen section while others feel it is safe to do so.

In the light of present knowledge may not the following conclusions be drawn with safety, keeping ever present in mind the terrible sword of Damocles—cancer of the human breast?

1. The laity is coming earlier, in increasing numbers, for examination.

2. Opportunity for service, on the part of the medical profession is being increased in proportion as the public responds to its summons.

3. The profession must develop a higher degree of diagnostic ability than in the past and possess itself of all the essential facts concerning breast conditions.

4. A judicial attitude must be maintained—careful examination with well poised judgment.

5. Accurate diagnosis of abnormal breast conditions means and demands a careful systemic survey as well as an efficient local examination.

6. The human mamma may be the seat of changes purely inflammatory or of neoplastic nature, closely simulating malignancy.

7. The relationship between the internal genitalia and the breast has been well established. Correction of abnormal pelvic conditions may ameliorate or relieve certain mammary changes.

8. The relationship between chronic intestinal stasis and certain breast conditions seems to be proved. Toxemia from teeth, tonsils and other parts of the body, may also have its effect upon the mammary gland.

9. Serious conditions are often overlooked while they are as yet amenable to the simplest measures of non-surgical treatment.

10. The use of the terms "breast" and "mamma" as synonymous may increase the difficulties of diagnosis. The writer believes it would be helpful to confine the term "mamma" to the gland with its ducts, including its outlet, the nipple; "breast" as embracing the entire mamma with all else that surrounds it—the skin, fat, fascia, capsule, and the bed upon which the gland rests, the fascia, muscle, and bone with the cartilage, in juxtaposition to the mamma.

11. Any of these structures may be diseased, and a multiple pathology be present, rendering diagnosis more difficult.

12. Abnormal conditions, congenital or acquired, may be present in neighboring structures, and lead to wrong diagnosis of cancer, or if malignant disease is present, lead to the diagnosis of the inoperable and incurable stage although the neoplasm is early and surgically curable.

13. In spite of present knowledge, it is impossible at times to arrive at an immediate accurate diagnosis. In justice to the patient it may be necessary to keep her under careful observation, treating general conditions, before proceeding to radical surgery. If then mistakes occur, it should be the earnest endeavor of the profession to make them fewer and fewer.

14. It is reasonable to assume that with the early recognition of some lumpy conditions of the breast, followed by adequate systemic treatment and mechanical support, underlying factors of malignant disease may be removed.

15. A question naturally arises: If all the foregoing is true, may it not be that in that

multiplex disease grouped today under the term "cancer," there are possibly causative factors underlying malignant disease in the toxæmias and the heterological activity of the endocrines? This seems to be a very promising field of research.

16. When cancer is present beyond a reasonable doubt, radical surgery is absolutely indicated.

To allow a patient to drift beyond the hope of surgical cure is a terrible tragedy; to unnecessarily and radically remove a woman's breast may be a profound calamity. With a deep sense of the limitations in the art of exact diagnosis and of the greater responsibility today in the enlarging field of service for humanity, let the profession ever be guided by the watchword, "Not Fears but Facts."

DO OUR LEADERS LEAD? IF SO, WHITHER?

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In the consideration of this question I take the position that our "medical leaders" do everything and anything but "lead." In this paper, I intend, briefly, to present certain sins of commission and omission on the part of our "medical leaders." At its conclusion I will let you decide whether or not our "leaders lead."

A leader most commonly is defined as "one who leads." Fundamentally, to lead it is necessary to have someone or something to lead. In another sense a leader may be looked upon as a guide or one who watches over the safety and comfort of those in his charge.

It is just and right that if someone or something makes a leader of an individual then that person who becomes a leader should advance and protect the material interests and comforts of those who make him a leader. His position is the same as that of the captain of a wrecked vessel who sticks to his ship until all his passengers are safe or at least as safe as he can make them.

Having briefly sketched the position of a leader, let us revert to our "medical leaders." Let us consider how they have failed in that duty of leadership which demands seeking and protecting the economic interests of the rank and file. Let us consider how little they have done for the protection of the material interests of those engaged in general practice or of him who has finished an interneship and is about to engage in general practice.

I make the following charges, viz.: 1. Absolute failure to raise their voices in the legislative halls of the city, state or national government to protect the interests of regular medicine against the encroachments of the cults and opathies and Christian Science with its allied frauds and burglaries. 2. A wishy-washy, spineless attitude whenever or wherever a feeble voice has been raised for the material interests of the rank and file in attempting to secure decent compensation for efficient service. 3. The "double code of ethics" which makes the newspaper advertising of the "leader" a tribute to his leadership, but which limits the newspaper publicity of the average medical man to his obituary notice. 4. The formation of the great public clinics, where, after due newspaper publicity to the great and mighty who are founding the institution has been given, the gullible of the rank and file are permitted to give their time and devote their talents to the treatment, not so much of the "worthy poor" as of the "wise sick" who know where they can get medical and surgical service gratis. 5. The issuance of "cut rates" in the work done for various corporations, including the accident insurance companies. 6. The formation of various oligarchies in surgery and medicine whereby self-elected and self-selected medical aristocrats (many of whom, by the way, were so superior to the rest of us that they gained their medical knowledge in a two-year course of sixteen weeks a year and never served an interneship) may regulate everybody else and decide who shall practice medicine or surgery—even after an examination and the issuance of a license by the State Board of Health.

As there probably is a time limit on this paper, instead of running the entire gamut of charges in crimes of commission and omission, let us consider those mentioned above.

On the question of the protection of the profession in securing adequate laws or the defeat of obnoxious ones, have "our leaders" ever been in the thick of the fight? If you do not know, ask some of the medical men who have been in the

fight. In the Constitutional Convention at Springfield how many of them appeared or even wrote or telegraphed in the effort to secure the passage of Proposition 300? If you are not familiar iwth the subject, ask those who did make the fight for this and other legislation.

At the present time with that foul bird, Compulsory Health Insurance, and the still more loathsome beast of prey, State Medicine, stalking in our midst, both of these menaces to the profession have the support of some of our brethren who are so well fixed with this world's goods that these measures are supposed to interest them, not from the standpoint of the medical profession but on the hypocritical grounds of the "welfare of humanity." Turn to your ILLINOIS MEDICAL JOURNAL for June, 1920, and read what some of your "leaders" are preparing for you under the subtle title, "Nationalization of the Agencies for the Health-Welfare of the People." Read that and then figure where the medical profession is going to land if they blindly follow the "lead" of the "leaders."

In the coming session of the Illinois legislature the medical profession will probably be looking for an amendmeift to the present Workingmen's Compensation Act. If the amendment is secured it will mean an increase of income to the average medical man. When the question does come up, I ask you to keep a weather eye on our "leaders" to see how active they will be for a measure which will help the rank and file.

On the second charge, have you ever noticed, when something has been proposed for the advancement of the material interests of the profession, the enlightening "hush" from those who should lead. Have you noticed the cold water they throw when some interest other than their own is advanced.

And the "code of ethics," which was made for the government and control of the "little fellow," but which permits the announcement of the many achievements of the "leader" in the public press and lay magazine.

At a recent meeting of the Council of the Chicago Medical Society, a surgeon, in discussing a decision of the Ethical Relations Committee, stated that frequently after a surgical consultation the family preferred the surgeon to the original physician. Naturally the consultant *had* to take the case. Here is your "ethics" with reverse English. If the "little fellows" only had a card index of the consulting surgeons who regard the general practitioners as a mere "reference bureau," they could soon take some of the "lead" out of the "leaders."

One the West Side not long ago, a general practitioner diagnosed and made preparation for operation upon a case of acute appendicitis. He made the very reasonable operating fee of $100, which the family were well able and willing to pay. The man of the house being at work was called on the telephone and advised of the condition at home. On asking his employer for time off and giving his reasons, the employer advised calling his physician, one of "our leaders." This fellow went out to the West Side, saw the case, removed the patient to his hospital and did the entire job for twenty-five dollars. The original physician was not dismissed, but was left to sit in his office waiting for the call which never came. Of course, a case like this is not covered by the "code." Or is it?

Take the formation of the great public clinics where all may receive the desired treatment from the medical profession. While the names of the list during the formation of the public benefaction are high and mighty, the stokers who keep the fires going in the clinics are the "little fellows," but they, being bound by the "code," are unmentioned. Not long ago the newspapers announced that at a certain dispensary the "poor public" had received about five million dollars' worth of medical advice. Anyone who knows about dispensaries knows that a good percentage of the five million was diverted from where it should have gone—to the medical profession.

If we think the general public is getting off cheap at the hands of "our leaders," figure some of the "cut rates" they hand corporations. At a meeting of the Contract Practice Committee, an adjuster for an insurance company cited the case of a man who fell from a building, rupturing his spleen, tearing the attachments of the liver and rupturing the gut. The case was operated on by a skilled man. The adjuster stated that the operation of repair occupied most of an afternoon. The skilled operator figured his afternoon's work and the accumulated skill of years at $110. The adjuster was telling this to show the alleged nerve of a general practitioner who had charged $75 for the reduction and splinting of a fracture. Do you know that insurance companies have on their operating staffs men you look upon as

"leaders" who do an operation for strangulated hernia with all after care for seventy-five dollars? Then do you wonder the fight the "little fellow" has to collect a reasonable fee for his work.

Consider our aristocracies in medicine and surgery. Go over the names of the founders and perpetuators. Do you imagine you will find the name of a single one who has done anything beyond advancing his own selfish interests?

Not long ago a member of the Stock Yards Branch had an idea. He printed a "fee table" which could be framed. He mailed it to physicians. He received a rather unpleasant caption to the notice about his activity in the *Official Bulletin*. Some years ago another physician had an idea. He would pass upon the qualifications of our surgeons. The elect would be knighted—the impure cast out. Did he make the mistake of charging one dollar for this privilege? He did not. He made the opening bet twenty-five dollars, which has since been raised, and a yearly renewal fee or bath to keep the surgeons pure. Was he exposed as buncoing the medical profession? He was not. He was and still is looked upon as a "leader."

If one had the time or the inclination he could go on indefinitely. Every one of us knows that "our leaders" do not "lead." What can we do to remedy this evil? In some instances nothing. Some of them through the connivance of the heart and the head are independent. Some we have made independent. Some we are frantically trying to make independent. In the future, before we boost anyone on to the pedestal of leadership, let us put them to the test. That test should be one of their stewardship to the medical profession. Let us consider whether or not they have used the opportunities and devoted their talents to serving the best interests of the profession.

Get away from the mawkish sentiment that whenever or wherever a medical man raises his voice that he has an axe to grind or that he is a politician. Get a little more politics into your own systems—at least enough to learn to protect your interests. Instead of backing the medical men who have been waging your fight, you sit back, or when you talk of them, it is to carry tales.

The Talmud says: "The soldiers fight but the Kings are the heroes." We, who bear the brunt of the battle, had better wake up or the Kings will ask us to fight on empty bellies.

25 E. Washington St.

THE ACCIDENT COMPANY, THE DOCTOR'S JINX*

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The most staggering blow to the efficiency of the healing art as well as the greatest humiliation to the medical profession that the present and last centuries have administered, have been the Compulsory Health Insurance Acts which fell like a blight on some European countries, especially Great Britain and Germany. It is a species of socialism that discriminates against those who attempt to guard the health and lives of the people. It has been truly said that "The Nation's Health is the Nation's Wealth." It might be as truly said that the Nation's health is the mainspring of the Nation's happiness.

Without health, wealth and happiness, life is not worth living. It seems passing strange that the contingent in modern progress who have so closely approached the miraculous in promoting these essentials should be menaced. At this time, however, it is not my purpose to enter the discussion of the menace of compulsory health insurance which is receiving so much attention and serious discussion in and out of the medical profession. My purpose is to bring to your attention briefly that unjust and greedy exploitation of the medical profession by the accident insurance companies. To my way of thinking these money-getting organizations are, in this country, the closest approach to the health insurance vampire of Great Britain. For many years I have been quietly defending my profession against these imposters, largely single handed and alone. I have not paraded my activities before the medical societies nor sought their co-operation as I probably should have done.

I am so averse to medical society rows that I have confined my work in these associations to the consideration, presentation and discussion of scientific subjects. In going it alone I have incurred the maledictions of accident companies; I have lost much of their business and whatever

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profit went with it; but have had that satisfaction that comes to a martyr in the cause of right. I have not aired my sacrifices nor sought sympathy nor co-operation. My colleagues who have profited by my sacrifices in fighting their battles do not even know that I have promoted their prosperity.

It has been reward enough for me to know that I have advanced the interest of my profession and could afford to make sacrifices which some of my colleagues could illy afford to incur. Some of my professional neighbors are now doing the accident surgery for manufactories and industries whom I formerly served and they tell me they are getting local fee bill rates for their services. For my services I had been offered fee bills prepared and submitted by the accident companies, but I refused to accept them.

In some instances they got service at their cut rate, not to say a starvation rate, by professional men who wanted more business and thought there was some prestige before the people in being known as surgeon for these industries. The public did not know that they were not employed by the companies whose employes they treated.

I am assured by a medical man of veracity who now serves a large employing company whose accident company's fee bill I turned down, after some sharp correspondence, that he is getting local rates. It is better for my profession that he have the work and the pay at a fair remuneration approved by the County Medical Society than for me to have it at a cut rate and, under the circumstances, I am glad he has it. The accident company was unwilling for me to have the work after I refused to let them skin me. In another instance an accident company sent me a series of forms to fill out for them, not for the employing company. I refused to fill them out unless the accident company paid me for my time and labor for their protection. They sent two of their men to see me so that they would have two witnesses to my statements. I told them I would prefer to lose the business rather than allow them to impose on me and rob me of my time and labor. They said, "Didn't we pay your bill for service to the employe?" "Yes," said I, "but that is not what we are talking about. You want me to furnish you a lot of evidence of injury in detail, showing nature, extent, location, probable length of disability; if any part of disability will be permanent, what per cent of permanent disability. You want to know if disability is partial or total; when he was able to do part of his work, when he could resume his regular occupation. You want to know if he is suffering from an old injury or disease that will render him liable to get hurt again, or prolong his disability if he should sustain an injury. You want a preliminary report of the injury; you want a final report; you want intermediate reports of progress; you want to know the cause of delay in recovery. You tell the patient and me that this detailed information is for his benefit and enables him to collect damages if he is entitled to any. The patient insists that all this information is for your benefit and protection and he is under no obligation to pay for it and refuses to do so. You refuse to pay me and are liable to drag me into court to help you beat my patient. Now, I am willing to give the employer and the patient the facts in the case, but if I give you all the information you ask for and fill out all these blanks for your file you must pay me for my time and labor like other people do."

Another doctor got that job, although the employing company and patient were much pleased at the results secured and the character of service rendered. This corporation wanted me to take care of their employes because they knew what kind of service they could always get; but they didn't want to break with the accident company which they believed was saving them money.

These are two concrete examples of exploitation of the medical profession by the accident companies, who make money for themselves by driving hard bargains with others. First, a grudging, penurious fee bill of their own making; second, proof of injury in detail for their own protection without any cost to them whatever. The doctor must go hungry, a victim of greed.

Listen to another incident in my personal experience. This brings up a question upon which some of my colleagues may take issue with me. I was handling the surgical end of a large industry that employed many people. I was rendering bills according to local rates. Everything appeared to be running smoothly. Employer and employees were pleased and I really believed I was giving "up to the minute" service. An agent of an accident company butted in. He stopped me on the street one day to say that his company had taken over the accident liability of

the company I served. He wanted to know how much I would charge to take care of the injured employees. This question at once opened up the old controversy of rates. Many medical men conscientiously believe and openly declare that corporations are better able to pay local rates for service than most individuals and ought to do so. Others argue that in private practice there is a large per cent of loss on bad debts, which is undoubtedly true, but in corporation work there are no bad debts, and, therefore, corporations and partnerships should have a reasonable discount from local rates. Moreover, they supply a much larger volume of business than any individual. Recognizing merit in this argument I said to this agent that I would make a 10 per cent discount from local rates if all the work was referred to me. His response was, "that means nothing to me." I lost that work, but got a bit of satisfaction out of the transaction besides the consciousness of being right. I lived to see the agent of that accident company and the superintendent of that industrial plant both go broke and out of a job.

There is another field of lively activity by these accident companies in which I have had an extensive experience. I refer to the exploitation of the medical profession by these "getters of easy money" in writing personal insurance. I think I have observed practically all the phases of their machinations in this field and how they exploit, not only the medical profession, but the poor laboring classes who are unsuspecting and do not read their policies. They listen to the plausible blandishments of the accident company's hireling whose elastic conscience, in many cases, enhances his value to his employer. This class of citizenship feel the need of some sort of protection against adversity because their margin between comfort and privation is so narrow that protracted disability drags them into the jaws of the wolf. Often have I witnessed the bitter disappointment of these people when it dawned upon them, when the wolf was actually at the door, that the protection they had paid for, in accumulating installments for years, had vanished under a clause in their policies, which the agent did not point out to them. To do so would be an argument against his business. The sucker might escape. The agent knows some other representative of the company will step in if a claim is made under the policy and that he will probably not have to face his dupe. At this juncture, I am reminded that the accident companies have the sagacity to select agents possessed of an agreeable presence that inspires confidence; a man with a "gift of gab" that is appealing and assuring; a man who knows something of the lives, habits and credulities of the people he solicits. He tells them what a great blessing to them and their families the insurance company offers them in misfortune. His argument is persuasive and convincing, his manner inspires confidence and assurance; but he does not point out the joker in the policy which he knows the purchaser will not read.

How different is the man who appears on the scene when the policyholder files a claim. This man is the adjuster. He is not that kind, friendly, obliging fellow who sold the policy. The adjuster treats him like he was a grafter seeking something for nothing. This is the fellow who points out the loop-hole in his policy that the company slips out through. Some of you may have met an adjuster for insurance and know what a cold-blooded proposition he is. The adjuster gives him a blank form for his doctor to fill out. This blank has much detailed information to be supplied. Many questions are not easy for the doctor to answer unless he has kept an accurate and long drawn out record of the case. He searches his memory, he searches his books and sacrifices much valuable time in getting proof for the insurance company. The company tells the policyholder that all this mass of evidence for the primary report, the current report and final report are for the purpose of aiding him, the policyholder, in the prompt collection of indemnity. The company tries to blind its dupe to the fact that these requirements, this evidence, were created by the company for its own protection and not for the benefit of the insured. The company's representatives tell the policyholder that he must pay the doctor for all this time and trouble in helping him. The patient doesn't see it that way. In fact, it seems to him that the evidence is against him rather than for him and he feels no obligation to pay for it and will not do so. What is the result? Simply that the doctor is sacrificed. He loses his time and labor and pains and the accident company has caused it and profits by it.

Moreover, this is not all the damage, nor even the worst, inflicted upon the doctor. It often

happens that the doctor cannot make the proof as the patient wants it. The facts will not justify him if he squares himself with his conscience. *No man can afford to prostitute himself to oblige his best friend or to avenge his worst enemy.*

This disappoints the patient, loses to him a part or the whole of his insurance which he thinks he has paid for. This leaves a sore spot and the doctor loses out as his family physician or surgeon. The end is not yet. This man tells his neighbors and friends that the doctor's evidence or his refusal to make the right kind of proof, helped the insurance company beat him out of his insurance. These neighbors and friends don't want that kind of a doctor in their families and the doctor is sacrificed again many times. We might employ a bit of slang and say that he is "muchly and multitudinously" sacrificed and all for these getters of easy money.

Now this is all wrong, absolutely wrong. If the medical profession does not protect itself from this imposition, pray who will protect it? Is there a remedy? Most assuredly there is. The accident companies create the necessity for the evidence they require. They must have this evidence for their own protection and their profits. By every reason of justice and fair play they should pay for it. They will gladly do so when the doctors wake up and refuse to serve as cat's paws.

THE CALORIC METHOD OF ARTIFICIAL FEEDING IN NORMAL BABIES.*

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If there is a weak spot in the practice of medicine, a stumbling block to the physician, it is my belief that infant feeding is the one branch of practice where we make more blunders than in any other.

For one who is grounded in the principles of nutrition and metabolism the average baby is easily handled, but for one not knowing the nutritional needs of infants his efforts are worse than hopeless. Even to the pediatrician this is the most difficult problem to be confronted. This problem should be given careful consideration and a study made of its complexities from the stage of the fertilized ovum up to the end of the first year, when the milk supply fails and semi-solid food becomes a consideration.

It is an undisputed fact that breast-milk is the ideal food for infants and where the mother is unable to feed her infant a wet nurse, if possible, should be tried.

We must necessarily choose an artificial food in many cases and in so doing one should be chosen which conforms in ingredients, as nearly as possible, with human milk. The essential unity then should consist of (1) protein or proteid, which builds the tissues; (2) fats and carbohydrates to supply the energy; (3) mineral salts, to facilitate bone formation, and (4) water, to hold the nutritional elements in solution. The form in which the composite elements are given is just as important as is the composition of the food. These elements exist in a variety of forms and many forms are equally nutritious, but all forms are not equally suited to our needs for we must avoid digestive derangements. We must consider the peculiarities of the digestive organs for in no two children have we the same degree of digestive capacity. After composition and form have been considered, we must then deal with the required quantity necessary to produce proper growth and development, still keeping in mind the fact that an overfed baby is being subjected to more harmful results than one that is underfed.

In order to feed infants scientifically we must, therefore, know for each age: (1) the amount of energy needed for maintenance and work; (2) the average amount of energy wasted in excretions; (3) the growth desired; from these figures we can easily determine the necessary amount of food by its caloric value.

The food elements required for all infants are the same, but the form in which they are given must be determined for each individual infant.

It is only with the artificially fed infant, in health, that I am going to deal as caloric feeding is out of the question with breast-fed babies.

Cow's milk meets most nearly the needs of the infant, as it is composed of fats, proteins, carbohydrates, mineral matter, and water; because it resembles very closely the human milk, and because it is easily obtained. Again we have our troubles with cow's milk because the proportion

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of ingredients is not alike in cows of different breeds nor in different cows of the same breed. The mixed milk from a number of cows is more to be desired than from one cow because of uniformity of composition; less liability to fluctuations, changes in composition and disease-carrying possibilities.

In adapting cow's milk for infant feeding we must realize at the outset that, no matter how we alter it, cow's milk is not a perfect substitute for woman's milk. It should not be lost sight of that there are inherent differences which will never be altogether removed.

It can be stated, however, that generally the results of artificial feeding have been very good, provided the artificial feeding was conducted carefully by competent persons. Faulty methods are more often responsible for bad results than is the artificial feeding itself.

As regards infant feeding, Chapin says: "In reality the whole process amounts to the training of the infant's digestive organs, and it is important to commence in the early months with small quantities of the protein of cow's milk, as this causes the greatest amount of trouble, moderate quantities of fat, and a liberal supply of carbohydrates, as these cause little digestive disturbance when not given in too large amounts." It is necessary that a sufficient amount be absorbed of those substances that are needed for the sustenance and growth of the body and, moreover, the requirements of energy must be met.

I need not mention the trials and tribulations which are encountered in the use of the top milk or percentage methods as you have all had plenty of experience in their usage, and if any of you still remain apostles of this faith, it is simply because of lack of knowledge of something better. The complexity of these methods, not only for the mother who must prepare the milk, but also for the physician who must work out the formulæ for infants who differ in digestive capacity, alone renders their use impracticable. If the constituent elements of all milk remained constant in quantity, then we might work out our formulæ in definite proportions, but when you deal one day with a 2.5 per cent. and the next with a 5 per cent. milk you can readily see just how accurate will be your calculations, and again with these methods we have no way of calculating the quantity an infant should receive. The percentage method of feeding infants is based on mixed ingredients in such combination that when combined they should resemble certain chemical formulæ of breast-milk at different ages. Theoretically, the percentage method is correct; practically infants cannot be fed according to definite percentages because of daily variations.

In feeding infants we have in all four classes with which to deal: (1) well infants which cannot obtain breast-milk, and the control of which the physician has from the beginning; (2) infants that are well except that they are suffering from bad methods of feeding — this being the common class; (3) infants of feeble constitution, whose digestion is easily deranged, and (4) infants that are acutely ill. With the first three classes we deal in using the caloric method.

During the first weeks the dilution should be such that the amount of proteid reaches approximately that of human milk. This is accomplished by adding two parts dilutent to one part milk, higher dilutions being sometimes recommended. It is not rational to employ higher dilutions for not only are the proteids reduced, but other substances are diminished which the infant needs. In particular the caloric value of the food decreases to such an extent that the necessity for an increase of the total volume can hardly be avoided in spite of the addition of suitable constituents. The stomach and intestines are thus directly burdened and the total metabolism is overcharged, increasing the work of the heart, vessels and kidneys and increasing the production of sweat with its consequences. As to whether infants recovering from disorders of nutrition should not receive higher dilutions for a short time is another question.

The time of transition to more concentrated milk mixtures is best determined in a given case by the state of the infant's health and particularly by its digestive powers. Sometimes it will be necessary to give the stated dilutions for a longer period of time or return to higher dilutions. The transition should be very gradual. If under normal conditions, the energy quotient deviates for a long time disturbances are to be expected.

In the caloric method we must know the infant's age; the weight at birth and the present

weight; we must determine whether he is a fat, medium or thin baby; we must know the number and condition of the stools; whether or not he vomits or regurgitates his food and if so, when, how long after his bottle, how many times between bottles, how much at a time, whether or not it is projectile, character and odor; how many feedings he receives in twenty-four hours; how many ounces at each feeding; whether he takes all or only a part of his food; how many hours per twenty-four he sleeps; whether he is fretful or contented when awake; whether he is hungry or satisfied with the amount of food taken; whether he has been gaining or losing weight; whether the feeding has been regular or irregular; what food he has been taking and the method of preparation. With this data you are prepared to locate your trouble; to remedy the faults; to calculate the number of calories he has been receiving; to calculate the numbers of calories he should have; and to calculate the number of calories that he is going to get. It is very unwise to start feeding an infant the full number of calories he should have, for in the great majority of cases you will immediately get a food intolerance and this is what usually happens with the percentage method because the physician is not only in the dark as to the amount of food the infant should have, but he is ignorant as to the amount the infant has been receiving. Supposing we should have a patient, an infant with some intestinal derangement, and suppose we knew that this baby had been getting the wrong percentage of food, also suppose that we could not figure the amount of calories the baby had been getting. Now, Doctor, here is our patient waiting to be fed and we know this baby is sick because of a food intolerance caused by a food too high in protein and possibly sugar also, but we cannot figure the calories he has been getting. We must change the food and we will change the food, but how? Will we change it scientifically and by a method that we know is not likely to fail us or will we choose one of the top milk formulæ, guess at it and trust to providence?

The caloric method originated with the European physicians and found its way across the Atlantic, now being used in some of the best institutions in this country, the only difference being that the European men estimate calories per kilogram, while we Americans estimate calories per pound. With the caloric method we deal with whole milk instead of percentage milk, sugar and water. Infants are divided into three classes for the purposes of arriving at the number of calories needed. It has been found by analysis as well as by experience that emaciated babies need from 60 to 65 calories per pound weight in twenty-four hours; normal or moderately fat babies should have, up to five months of age, from 50 to 55 calories; and fat babies should have from 40 to 45 calories.

The age of the infant must be known; the amount the baby weighs and the amount the baby should weigh at a given age. The rule for the weight is as follows: Babies from 1 to 3 months, weight equals (age plus 8); 3 to 7 months, weight equals (age plus 10); 7 to 12 months, weight equals (age plus 8).

Infants under ten pounds are allowed one ounce of sugar, and over ten pounds one and one-half ounces in twenty-four hours. There are three sugars commonly employed in infant feeding: (1) malt sugar or dextri-maltose, (2) cane sugar, and (3) milk sugar. Malt sugar is the most easily digested and assimilated, cane sugar next and sugar of milk the least so.

Babies up to five months of age should have seven feedings in twenty-four hours, feeding at 6 a. m., 9 a. m., 12 m., 3 p. m., 6 p. m., 9 p. m., and at 2 a. m. After five months the feeding at 2 a. m. should be dropped, leaving only six feedings in the twenty-four hours. The amount is determined by the baby's age, one to two ounces more being given at each feeding than the age in months, and never less than three nor more than eight ounces at each feeding. The average whole milk equals approximately twenty calories per ounce; sugar 120 calories and wheat flour 100 calories. Where a milk intolerance to the required caloric amount exists, infants are usually started on one-third milk and two-thirds water and this gradually increased to whole milk. In hot weather and when gasto-intestinal disorders are present the milk is poured into boiling water, stirred and left over the fire for three minutes. The objections to boiling the milk are: anemia, scurvy, rickets and constipation, but with careful watching and careful handling these objections can be overcome.

To illustrate: Supposing we have a patient 7 months of age, weighing 15 pounds. This baby would be classed as a normal weight baby and, therefore, should receive 50 calories per pound weight in twenty-four hours. We must first calculate how many calories this baby should receive in twenty-four hours. Taking 15, the weight times 50, the calories per pound, equals 750 or the number of calories per 24 hours. The baby being over 5 months old should receive 6 feedings in 24 hours and feeding 1 ounce per feeding more than the baby's age, he would receive 8 ounces per feeding, or (6 x 8) equals 48, the total number of ounces in the twenty-four hours. Supposing we give him 1½ ounces of sugar in 24 hours (because his weight is over 10 pounds), and 1 ounce equals 120 calories, then 1½ ounces would equal 180 calories. Subtracting the 180 calories from the 750 or total he should receive, we have left 570 calories to be supplied in milk. As milk equals 20 calories per ounce, then 570 divided by 20 equals 28.5 or the number of ounces of milk to be supplied for the 24-hour feeding. If we give a 48-ounce mixture in 24 hours and 28.5 ounces of that is milk, therefore the remaining 19.5 ounces must be supplied in diluent or water. We then have as a result this formula: Milk, 28.5 ounces; water, 19.5 ounces; and sugar, 1½ ounces or 6 level tablespoonful. (Malt sugar) —6 level tablespoons per 1½ ounces.

Age, 7 months—weight, 15 pounds.
Number of feedings, 6—ounces per feeding, 8.
$6 \times 8 = 48$, # oz. in 24 hours.
Sugar, 1½ oz. = 180 cal.
$15 \times 50 = 750$ total cal. in 24 hours.
sugar = 180 cal.

570 to be supplied in milk.
$570 \div 20 = 28.5$ oz. milk.
$48 - 28.5 = 19.5$ oz. water.
1.5 oz. sugar.

If we had been feeding this baby since birth this is the mixture he would be receiving at the present time, but as this is his first visit to us we would not dare start him on this combination for fear of an intestinal derangement. The question then naturally arises, what would we do? We would give him six feedings and his eight ounces, making a total of 48 ounces in 24 hours, but we would start him on whole milk, ⅓ part, or 16 ounces; water, ⅔ or 32 ounces, and sugar 1 ounce. On this mixture then he would be getting—

Milk, 16 oz. × 20 = 320 calories from milk.
Water, 32 oz.
Sugar, 1 oz. = 120 calories.

Total 440 calories.

We would start him on 440 calories in 24 hours instead of on 750, his required amount, but we gradually increase our calories every three or four days until a tolerance for stronger food becomes established. This is done by first increasing our sugar content up to the required amount or 1½ ounces, then our milk is increased and our water diminished, up to nine months of age, when he should be receiving 850 calories or 180 calories in sugar and 670 calories in milk. If he is receiving 850 calories at 9 months, what will his formula be?

Sugar, 1½ oz. = 180 calories.
Total cal. or 850 — 180 = 670 cal. in milk.
670 ÷ 20 (1 oz. milk) = 33.5 or ounces of milk in 24 hours.
48 — 33.5 = 14.5 or ounces of water in 24 hrs.
We have then this formula:

Milk.....33.5 oz.
Water.....14.5 oz.
Sugar..... 1.5 oz. or 6 level tbs.

This is the caloric method of infant feeding in a nutshell and, as you see, has been presented in a rather condensed form. I have not elaborated on this method for the simple reason that it would take a good sized book to explain each step in detail, but it has been the purpose of this paper to make, if possible, the simplicity of this method clear and to give you, who are not acquainted with the caloric method of infant feeding, just enough to get your interest, and if this has been accomplished we will have saved the life of many babies as, in the opinion of the writer, this method, if used rightly, is a trusty weapon of defense in feeding cases. It is not only easy for the physician to grasp but the mother soon learns to understand it and if she understands what she is doing, she can better do it.

I have no hesitancy in saying that in the years

to come, it is my opinion, this method will be the one universally used and that the old top milk and percentage methods will become obsolete. It is just as easy to feed babies by correct and scientific as by haphazard and guesswork methods, and it is much more satisfactory, not only concerning the welfare of the infant, but to the reputation of the physician.

DISCUSSION

Abstract

Dr. S. L. Gabby, Elgin, finds that many babies are very much under-fed in the early months of their lives, rather than over-fed.

While agreeing with the author in using the caloric method, he believes many of the disturbances which he lays to the fact that the babies are over-fed with protein or sugar are very probably due to bad milk, and he does not fear the sterilization of milk. The dangers of scorbutus and other derangements due to the boiling can readily be overcome by adding fruit juices.

He does not hesitate to feed babies the very first day of their lives and he finds that colics and other derangements which we lay to overfeeding are due to underfeeding, and that these babies frequently cry from hunger. A baby can stop when it gets enough to eat, but it can't get more when it isn't given to it.

He uses scales to find out how much the babies are getting from the breast, and does not hesitate to give them artificial food.

Dr. Henry W. Cheney, Chicago: To those who are not particularly interested in feeding babies, Dr. Frech's careful calculations may seem very complicated and difficult to remember. That, however, simply shows that the baby should be fed by a doctor who is interested in the baby and who knows all the details that are so necessary in pediatric practice. Detail in feeding babies and in the care of children is the main thing. As the doctor suggested, particularly, we must inquire into the hours of feeding the child, the comfort and stools and vomiting, and all that. Most of the ordinary practitioners don't have time to bother with such things, and so his suggestions are very valuable.

He emphasized the value of boiling milk in difficult feeding cases. We used to be afraid of feeding babies boiled milk for any length of time, but we know that boiling a milk mixture for two or three minutes will oftentimes overcome many cases of difficult feeding. Oftentimes carbohydrate is more responsible for trouble than the protein.

Dr. C. W. East, Springfield, thought the great value of the assayist's paper is the fact that he has a method and that he is interested in detail, and that he doesn't merely tell the parent to either feed cow's milk or one of the proprietary foods or Eagle Brand or even mother's milk.

Almost all we hear on baby feeding seems to go on the assumption that the child is some kind of a container into which if you get the right mixture everything will be all right. Now, it isn't true, because back of it is what Dr. Butler so well instanced, and at the present the best method of baby feeding is by the intelligent, conscientious and interested doctor.

Only last week two in a family of children who had, as far as we could judge from carefully taken history, had every advantage of maternal feeding from their healthy country mother and yet now at the ages of five and seven years if we would have stood them upon the table the bow-legs of one and the knock-knees of the other would have spelt "o-x, ox."

Dr. Frech (closing discussion): There is just one point brought up in the first discussion that I would like to say a word about. I am going to make a bold statement. This gentleman stated that he found the majority of troubles with infants came from underfeeding. Gentlemen, I have never in my life seen an infant deranged from under-feeding.

Pathologically, if you are under-feeding a baby, the baby will be cross and fretful perhaps from hunger. Hunger doesn't hurt a baby. It doesn't hurt you to go hungry if you have sufficient calories to maintain your body needs or equilibrium. But with overfeeding, you get all your intestinal derangements. I have watched these cases very closely at the babies' hospital in New York City and also at the Post Graduate, and I find that after all, if you are going to take up the subject of intestinal derangement, which my paper didn't intend to cover, but since it was mentioned I thought I would say a word about it, the best thing is to take the classification of Finklestein and stick to it.

If your feeding is not agreeing with your baby, you are going to get a disturbance of balance. If you are in a position to recognize that you have a baby with disturbed balance, it is easily corrected then and there. If this disturbance of balance is not corrected immediately, your next step will be of dyspepsia which includes colic and other so-called gaseous fermentation. Dyspepsia is easily corrected, but if not corrected, the next thing you will have an intoxication. Intoxication may be corrected but not easily. Intoxication is a condition that is hard to handle and if your intoxication is not corrected in due time, your baby goes on to the state of decomposition, and when you get a baby in the state of decomposition, the fight is just about over; there is very little that can be done. There are very few that get well when they reach that stage. If more men would follow that one classification, it appears to me these cases would be very easily understood. A man doesn't have to diagnose a bowel trouble as an enterocolitis or as a colitis. The general condition goes more into it.

Take your four points of classification from Finklestein's "Disturbance of Balance and Decomposition." It will serve the whole thing.

SOME PROBLEMS IN INCREASED INTRA-OCULAR TENSION*

THOMAS FAITH, M. D.

CHICAGO

It is not the purpose of this paper to advance any new theories as to the etiology of glaucoma, nor to precipitate a discussion of the subject in general, but to recite a few cases that have come under my observation and to discuss with you the problems which they have presented and if possible by the discussion of these problems to arrive at some satisfactory explanations for the unusual features which they have presented.

I submit the following cases:

Case 1. C. R., aged 54. First seen May 3, 1902. Complains of gradual loss of vision in right eye for a number of weeks and of pain for a few days. Health has always been good and he has been a very active carpenter contractor for many years. Has no history of injury.

R. E. V. = fingers at 8 feet. Anterior scleral vessels distended; anterior chamber shallow; pupil slightly dilated; T + 2; media clear, disk cupped, typical of glaucoma.

L. E. V. = 20/40; eye in every way normal. Media and disk normal with + 50 = + 75 × 180; V = 20/15.

Ordered Eserine sulph. gr. 1 to ℥i in right eye 6 times per day. Pain disappeared at once; pupil contracted and tension somewhat reduced but still + after ten days' treatment R. V. = 20/160. After two weeks of treatment with eserine—iridectomy was advised as tension was still elevated. Patient refused operation; eserine was continued and he was seen regularly every three or four days up to first week in July at which time tension was still + and vision 20/180. Pupil remained contracted and field was contracted about 20° above, 20° temporal, 25° below and 30° nasal. The media remained perfectly clear.

About this time patient went on an extended ocean voyage, remaining away from home several months, traveling in various European and Asiatic countries, and I did not see him again until the third week in November, being absent four and one-half months. When I examined the eye again I found right vision nil. No light perception, pupil dilated, lens completely opaque; anterior chamber about normal depth and strange to say tension normal or about the same as in the left eye. No pain or discomfort whatever.

He stated that he had not used eserine since about August 20th, as at that time his supply became exhausted, while he was traveling in the Orient, and as he was not suffering he made no effort to have his drops replenished, but he had noticed the gradual decrease of vision which he thought was no more rapid after the drops were discontinued than while they were used. I saw this gentleman occasionally for about fifteen years, refracting the left eye a number of times and always found the blind eye free from pain or tension. A strong divergence developed as is often the case with a blind eye. When last seen in 1917, T. of R. E. was 20.

L. E. T. = 22; L. E. V. = 20/15; with correction and field normal. The right eye never suffered any further degenerative changes.

I am at a loss to explain the happenings in this case except on the supposition that lens swelling existed for a number of months before any change in transparency could be observed; unless the change was peripheral, and since the case presented all of the earmarks of a chronic simple glaucoma, there was no reason for dilating the pupil. The disappearance of hypertension after opacification and shrinking of the lens certainly helps to bear out the theory of lens swelling as a cause of the glaucoma.

That a lens may remain clear and swollen for some months has been shown a number of times in cases in which foreign bodies have been lodged in the lens; and these lenses always eventually become opaque.

Then, too, we know that we may have fair central vision with a lens swollen several diopters, but it is surely unusual to have a lens so swollen that it produces the above symptoms and yet remains to all appearances clear. Of course there was a cause for the lens swelling, but the exact cause I can only conjecture.

Case 2. N. S., aged 32; painter. Came in September, 1908, complaining of asthenopic symptoms, lachrymation, slight frontal headache, and sensitiveness to light, particularly in the morning.

R. V. = 20/50; L. V. = 20/40. Right pupil very slightly dilated; left normal in size and in reaction; anterior chambers both shallow, right shallower than left. Right eye slightly more prominent than the left and anterior scleral vessels more in evidence than in left eye. Media clear; both eyes' nerve heads normal; some excavation, but of typical physiological type.

There was, however, a distinct ring of atrophy in the choroid at about one-half a disk diameter from the disk margin and completely surrounding the disk in both eyes.

R. T. = 46; L. T. = 38 with Schiotz tonometer. Fields in both eyes showed a concentric narrowing, of about ten degrees with a slight cutting in of the nasal and superior nasal field of the right eye. Pilocarpine gr. 1 to ℥e 5 was ordered to be used four times during the waking hours and once during the night. After four days of this treatment

R. V. = 20/25; L. V. = 20/15. R. T. = 30; L. T. = 25.

*Read before the Ear, Eye, Nose and Throat Section of Illinois State Medical Society at Tenth Annual Meeting at Rockford, May 19, 1920.

Patient had a thorough general examination by Dr. Arthur Elliott with negative report. He was under observation for three and a half years constantly using myotic solutions. When last seen in 1912 R. V. was 20/25, T. 24; L. V. 20/15, T. 20. At this time he was using pilocarpine nitrate gr. iii to ℥e 5 and was perfectly comfortable. The ring of choroidal atrophy had become more marked in the right eye, but remained about the same in the left eye as when first seen. There had been no apparent change in the nerve head in either eye and the fields when last taken in December, 1911, showed practically the same outline as when first observed.

The lack of a glaucomatous excavation in this case one can explain on the supposition that the patient probably had a rather prominent papilla previous to the onset of his glaucoma; but why the ring of choroidal atrophy should develop so early in the course of the disease since it is usually a very late manifestation of chronic glaucoma is a fact for which it is difficult to find an explanation.

Case 3. Miss J. J., aged 29, Norwegian housemaid. Came in September, 1912, complaining of loss of vision in right eye. She stated that since the early part of the previous winter she had suffered from attacks of slight inflammation and pain in the right eye. These attacks would usually last for a couple of weeks and she noticed that after each attack her vision became poorer. She has had no attacks during the past three months but vision in right eye is rapidly diminishing. She has never consulted an oculist previous to this time but has been given a number of pairs of glasses by a local optician.

R. V. light perception only; pupil dilated oval vertically; anterior chamber shallow; pronounced glaucoma cup with arterial pulsation in retinal vessels. T. = 62, Schiotz tonometer. Eye not congested.

L. E. V. = 20/50; anterior chamber shallow; pupil dilated oval vertically; T. = 36; distinct glaucoma cup. Right field could not be taken but left field showed contraction of 20°, temporal 15°, nasal, 18° superior and 10° inferior.

Eserine gr. 1 to ℥i ordered for right eye and pilocarpin nitrate gr. II to ℥i for left eye. The drops to be used in each eye 6 times per day.

After five days of this tretament R. E. T. = 56; L. E. T. = 26. No improvement in vision of right eye, but vision of left eye improved to 20/30 +

Patient was sent to hospital and subconjunctival injections of citrate of soda were used in right eye for one week, the myotic being continued in both eyes. There was no improvement in tension or vision in right eye at the end of this time and a sclerocorneal trephining was done. Tension was reduced to 15 or 18 and remained so for about six weeks when a complete retinal detachment occurred. The tension increased to 70 and the eye which began to show scleral ectasia was removed. During this time tension in left eye was kept between 18 and 25 by the use of a pilocarpine. Patient was seen every one or two or three weeks until August 5, 1915, at which time L. V. = 20/30 with correction T. = 23 and no perceptible change in fields. The case was not seen from this date until November 28, at which time V. = 20/40, T. = 48, and field narrower than in August.

From November 28, 1915, to March, 1916, the strength of the pilocarpine was constantly increased up to 2 per cent; then eserine was substituted beginning with 1 gr. to ℥ and gradually increased, and while the central vision came back to 20/30 tension could never be reduced below about 26, and frequently went to 34 or 36, the fields slowly narrowing. On March 3 iridotasis was performed with immediate reduction of tension and apparent arrest of field changes, the tension varying between 12 and 18 with the Gradle instrument for a period lasting from March, 1916, to June, 1919, when a drop in central acuity to 20/40 was noted, accompanied by a further pronounced decrease in the extent of the field. Tension, however, remained around 15 or 18.

Eserine was tried but with no benefit. Fields and central vision have continued to deteriorate. When last observed on March 17, 1920. Central vision 20/60 and fields only about 10° or 15° across. Patient sees red and green with much difficulty. Three blood Wassermanns have been made on this case since June, 1919, and all have been negative. This case certainly shows the futility of pinning our faith to myotics when so much is at stake.

Case. 4. Mrs. M. S., aged 43. Came February 27, 1920. For past week has had blurring of left eye and occasional headache over left eye. Had similar trouble sixteen or seventeen years ago. R. V. = 20/25; L. V. = 20/100. Eye congested. Anterior scleral vessels much distended and pupil slightly dilated but reacts to light readily and anterior chamber was deep. Tension to fingers +; media perfectly clear and fundus normal; fields right normal, left contracted 20° in nasal field. With tonometer T. = 75. Such high tension with good pupillary reaction was so unusual to me that I secured another tonometer thinking my instrument might be at fault, and on retesting found T. = 75 same as with my own Gradle tonometer. Arterial pulsation was not present, but could be produced by pressure with the finger against the globe. There was a small posterior synechia below which patient states was present after the old attack. On account of the deep anterior chamber, I determined on carefully using a mydriatic. I accordingly applied five instillations of 2 per cent homatropine sol. with two instillations of 4 per cent. cocain. At the end of an hour and a half the pupil was dilated widely and the tension was reduced 15 points, being now 60 instead of 75. A careful examination of the cornea lense and media showed no exudates whatever. Scopolamin hydrobrom gr. I to ℥i every

two hours was ordered. A leech was applied and a calomel purge was given. The next day tension was 50; less pain and eye feeling much better. L. V. = 20/40. March 1, T. was 20 to 24 and V. = 20/30 and remained so for one week when tension decreased still further, feeling distinctly minus to fingers and recording 10 with tonometer. About this time a few deposits appeared on the lense but none could be seen on the posterior surface of the cornea. This patient had a + + + Wassermann, and a number of teeth with apical infection, but had practically recovered from her eye condition before any of the teeth were extracted. She had been given about eight or ten rubs of gr. each of unguentum hydrarg up to this time. The eye has remained well and patient is under the care of her physician for her lues. She has had part of her bad teeth removed and when I last saw her V. =20/25, field normal and T. 18-20.

These four cases have been selected from among a considerable number of private cases of glaucoma of which I have rather complete records, on account of the unusual features which they have presented, and in their study one is confronted with a number of problems the solution of which would add much to our understanding of what we are pleased to call glaucoma.

In Case 1 my diagnosis when the case first came under observation was primary chronic non-inflammatory glaucoma, but the subsequent history entirely refutes this diagnosis; as cases of this class do not recover normal tension either with or without operation in most instances and marked degenerative changes in the globe practically always occur in the course of time. On the other hand, could a lens swell sufficiently to produce T of + 2, a dilated pupil, a glaucoma cup and a shallow anterior chamber without showing some evidence of opacity, and if it were not lens swelling which caused the symptoms, how can we account for the return of tension to normal, and the deepening of the anterior chamber which accompanied complete opacification of this lens?

In Case 2 which followed the course of a rather mild chronic non-inflammatory glaucoma, how can we explain the early appearance of the ring of choroidal atrophy which was seen when the patient first appeared for treatment and which was unaccompanied by characteristic changes in the disks, yet these rings of choroidal atrophy, which became more pronounced with time, were the only positive degenerative changes which could be seen.

In Case 3, which in most respects is a typical case of chronic primary glaucoma, we are confronted with the problem of optic nerve and retinal degeneration continuing after the hypertension has been permanently relieved, which I would account for on the principle that once a degenerative process (primarily due to pressure) has been set up in these nervous structures and has become well established the changes continue even though the pressure has been removed, and this I believe is one of the strong arguments for early operation in primary glaucoma, the tension to be relieved before the degenerative processes have become well established.

In the fourth case the problem is to account for the freely mobile pupil with tension of 75, and there is no doubt that it was true intraocular tension, since it was reduced by treatment, and the question naturally arises in this case, does a deep anterior chamber always mean secondary glaucoma, or increased intraocular tension from disease somewhere in the uveal tract.

And I would raise the question, Is it not usually a safe procedure to use a mydriatic guardedly in all cases of increased intraocular tension which are accompanied by acute congestive or inflammatory symptoms if the anterior chamber is deep?

DISCUSSION

ABSTRACT

Dr. H. H. Brown (Chicago): The confusion of our knowledge of the elementary condition of the eye in glaucomatous conditions makes us rather dubious as to our treatment of these conditions.

It may escape our attention for a short time, but a swollen lens can not exist without indexing a diseased condition of the interior of the eyeball. It is indicative positively of the retinal choroidal change related in one of these cases.

The doctor has failed to make any statement or reference to general physical conditions, which should never be overlooked in the discussion of glaucoma, because they are as closely allied to physical changes as any disease of the eye which we are called upon to handle.

However, there are obscure physical conditions within the eye possible of inducing a tension, illustrated by the crescent which is referred to in one of these cases as later productive of physical disturbance in the zonular, and thus lenticular swelling and tension. Now, this lenticular swelling and zonular perversion is where the question of operation versus myotic naturally comes in for discussion.

He is of the opinion that the longer we pursue the

myotics, the less confidence we have in their use and that we come to a period sooner or later where the only definite means we have in hand is operative procedure of one type or another.

Time and again, he has instilled a mydriatic into the eye when he knew the tension was up, to get a reduction.

Is that due to temporary plugging of the zonula which is relieved, and is it safe to attempt that as a routine? No doubt many of you slip a little atropin into the eye when you don't want the other fellow to know it, because it is inexplicable that some of these cases are immediately relieved by the instillation of a dilating agent.

He assumes that it is pulling back the iris and giving the swollen lens an opportunity for accommodation.

Dr. Clark W. Hawley (Chicago): is convinced that in most of our cases glaucoma is a symptom rather than a disease in itself.

I haven't the time to go on and say what I would like, but as an illustration of that, I would say this: About four years ago, I believe, I was the first one in this country to develop the subject of a physical condition of the body which indicated itself in a glaucomatous attack. It had been hinted by our lamented friend in Philadelphia, who had just died, and I reported before the Pacific Coast Ophthalmological Society, six cases which show distinctly that many of our glaucomatous cases come from some physical defect of the body. All these cases today, except one, are practically well, after four years.

I am speaking of this now to show you where the six cases stand. The first one can never have glaucoma again because she is now dead. But up until she died, there was no loss of vision. One peculiarity of this case was that she was a one-eyed individual.

The next case I have followed for four years, and she has no increased tension. Her vision is 20/30 and had increased from 20/100 to 20/30. That individual is one-eyed.

The next case has disappeared from my observation, but I understand that she also is well.

The fifth case was a very serious one, and she lost both eyes, in spite of all that I could do for her.

The sixth case is one that Dr. Suker has seen—simply chronic glaucoma. That patient today is holding her own, though she had a second attack a year ago, following a very severe influenza case. That is a one-eyed case.

The question arises then with Dr. Suker's remark that they are sympathetic cases.

In this last case I removed the left eye twenty-two years ago, and I don't know where the trouble comes from, unless from the stomach.

All these cases have been treated almost entirely at first by caring for the infection of the lower bowel. The first case had nothing but that for a week, and she promptly recovered her vision and retained it until her death.

So, I believe we are all working perhaps at the wrong end of our problem when we work at the glaucomatous condition in the eye itself, and I think we would find, if we studied it more, that our glaucomatous trouble comes from some physical ill.

Dr. C. B. Welton (Peoria): One of the problems is whether to go in on these cases with operative measures or treat them with myotics.

In one case of chronic inflammatory glaucoma he has been using atropin, because of the progressive contraction of the fields; in another he has continued the myotics. In both these individuals the vision in one eye was lost entirely. In the other, there is this phase of the problem, whether to operate or continue treating as Dr. Faith suggested.

He would like to know the long after-history of these operated cases, and how that is as compared to other cases.

Dr. Hayden (Chicago) considered the statement of the author's fourth case and Dr. Suker's remarks about glaucoma being not an eye disease but an eye manifestation of a general condition, to be extremely important.

Focal infection, that Dr. Faith mentioned in his last case, should always be looked into. And the question of careful elimination of syphilis, not only by blood Wassermann, but also by the spinal fluid Wassermann, is extremely important because not a few cases will show a strongly positive spinal fluid reaction when the blood is entirely negative.

The use of mydriatics in glaucoma must be attempted with great care, and in no instance should any sort of a mydriatic but homatropin be used in the beginning. If we assume that the glaucomatous condition is due to an iridocyclitis, the use of the mydriatic will be attended with beneficial results.

Brilliant results have also been reported of cases that had been treated with the thermophore five or six years ago with no recurrence of pain and with their vision still as it was at the beginning of the treatment. The treatment, as you know, consists in the use of dry heat from the thermophore applied to the eye at about one hundred forty degrees for about five minutes at a time.

Dr. Oliver Tydings (Chicago) approved the use of homatropin as the mydriatics of choice cases of doubt. There are cases where it is impossible to make a diagnosis without it.

Dr. Faith spoke of a deep anterior chamber with a ciliary congestion, first of the swollen lens. He believes the tension will keep practically normal until you have inflammatory symptoms started, followed by an increase in tension when you get your glaucomatous tension secondary.

There is some physical condition in these cases that we do not know the first thing about. The sooner we acknowledge it, the better for us. There is nothing he approaches from a diagnostic standpoint with greater care than glaucoma.

SOME PROBLEMS ENCOUNTERED IN ATTEMPTING TO APPLY INSURANCE METHODS TO THE SICKNESS HAZARD*

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SCHENECTADY, N. Y.

Some reasons why sickness insurance of the ordinary short duration illness type has remained a weak sister in the insurance family.

Arguments showing the fundamental weakness of the type of so-called health insurance proposed by the advocates of compulsory health insurance.

The first amendment I would offer to any health insurance scheme either voluntary or compulsory would be to eliminate all provisions for fund paid medical service.

U. S. statistics show clearly that so far as the ordinary run of illnesses are concerned there is no more reason for the doctors being paid through an insurance fund than there is for paying the grocery bill by means of grocery insurance.

In the United States less than 3.5 per cent. of sickness costs are covered by insurance. This is the record as it stands after more than fifty years of normal opportunity for development. The advocates of Compulsory Health Insurance would have us believe that the more than 96.5 per cent. deficiency should be made good by the mandate of the law. At first glance some of their arguments seem at least partially plausible. However, when after more than fifty years of free opportunity for development an insurance plan shows a record of less than 3.5 per cent. accomplishment and more than 96.5 per cent. failure of accomplishment then there must be something wrong with the plan. I believe that it will be well worth the time at our disposal to study some of the reasons for this failure.

The chief reasons for the failure are, I believe, not difficult to ascertain. A study of those forms of insurance which have become almost universal in their application, such, for instance, as fire, life, marine and auto liability insurance, shows us that all of these forms of insurance comply with certain fundamental requirements. *First,* the events insured against are of relatively infrequent occurrence, and *second,* the events when they do occur are serious and as a rule beyond the ability of the insured to meet their consequences successfully without the aid of insurance. A community of three or four hundred houses loses on an average only one or two each year by fire. Between the ages of twenty and forty the chances of death per individual per year are only about one in a hundred. Compared with the number of ships that sail the seas shipwrecks are very rare. Considering the number of automobiles in operation accidents with serious personal injury plus liability are relatively infrequent. On the other hand the losses caused by these events when they do occur may be very great, and far beyond the normal ability of the insured to meet without the aid of the insurance.

The mere fact that certain events when they do occur are liable to cause more or less hardship or that the expenses incurred by them are more or less irregularly distributed is not in itself proof that the insurance method can be successfully applied. Everyone knows and recognizes the advantages of fire insurance, and yet I have never heard anyone advocate that the average property owner should attempt to cover by the insurance method the expenses incident to the ordinary wear and tear on his property. Probably every man in this audience who owns his home carries fire insurance, and yet I do not suppose that a single one of you has ever even thought of carrying insurance against the occasional necessity of having to paint your house. There are some very definite reasons why house-repairs insurance has never been developed. In the first place the necessity for such repairs is of frequent occurrence and insurance covering them would require an enormous amount of detail in its management, necessitating correspondingly high overhead costs. In the second place the expenses when they do occur are not beyond the ability of the house owner to meet by other means less wasteful and expensive than the insurance method.

The moment we begin to study the problems of sickness insurance we find that when we attempt to cover by the insurance method the ordinary run of short duration illnesses we are confronted with an insurance proposition of the house-repairs or house-painting type. Minor repairs are of almost yearly occurrence, and so are minor illnesses. The average house needs repainting about once in five years, and the average

*Read before the Medical Society of the County of Washington at Hudson Falls, New York, October 6, 1920.

individual suffers a short-duration, incapacitating illness about once in five years. True it is that the incidence of sickness is not evenly distributed, but, as I will show you later, the uneven distribution of sickness has mostly to do with the hard-hitting, long-duration illnesses which I believe constitute the insurable portion of the sickness problem.

To illustrate still further the vast difference between fire insurance and sickness insurance of the short-duration illness type let us compare the relative costs of the two. In fire insurance the ratio between cost and protection is for the average risk about $1 premium per annum for $300 worth of protection. In the case of favorable risks the $1 premium per annum will purchase as high as $600 of protection. The ordinary short-duration illness type of sickness insurance is from *fifty* to *one hundred* or even more times as costly as fire insurance. One of the best of the short-duration type sickness insurance policies ever offered is that of the General Electric Mutual Benefit Association of the Schenectady Works. During the six years ending with 1919 the ratio between premium and protection in this association was $1 premium per annum for an average protection of $4.84. Even this insurance cost the holders more than sixty times as much as did their fire insurance. Most other sickness insurance policies which I have studied are even more expensive.

When one can insure a six thousand dollar house against loss by fire at a cost of twenty dollars per year, there is no question of the advisability of carrying the insurance. On the other hand, if it were to cost $1,500 per year to insure a $6,000 building then almost no one would carry fire insurance. This is, however, almost the exact ratio between cost and protection as it obtains in the short-duration illness type of sickness insurance.

The reasons for the low insurance value of the short-duration illness type of sickness insurance are not difficult to ascertain. The economic value of insurance decreases as the occurrence against which the insurance is carried becomes more frequent and the distribution more uniform. For illustration, suppose that each individual could count upon being sick once a year for an approximately uniform length of time. Then it would be the height of folly to attempt to carry yearly term sickness insurance because from the very nature of things the returns from this insurance could only be the amount of the premium paid less the overhead costs of conducting the business. It is because the common run of short-duration illnesses are of relatively frequent occurrence and have a relatively uniform distribution that they do not lend themselves readily for solution by the insurance method. Out of a group of 1,000 individuals approximately 400 will suffer some form of illness during the year. About 200 members of this group will have one or more weeks of disability due to illness, but of these only about sixty will suffer more than four weeks' disability and only about twenty will suffer more than ten weeks' disability. In the case of the twenty suffering the more than ten weeks' illness and of the sixty suffering more than four weeks' illness there is no question of the desirability of sickness insurance but to attempt to include along with them the two or three hundred cases of minor non-disabling illnesses or even the one hundred and forty cases of short-duration disabling illnesses is bound to result in an attempt to accomplish something which does not conform with the first fundamental requirements of a successful insurance proposition.

The remarkable uniformity of the distribution of the short-duration illnesses is nowhere better shown than by the data obtained by the United States Bureau of Labor Statistics. A study by this department of the cost of living in 1,214 workingmen's families in several different localities showed that 99.3 per cent. of these families had sickness expenses during the year. Although 99.3 per cent. of the families had sickness expenses during the year the costs were so uniformly divided that while the average cost for medical care was $44.64 per family per year, only 3.17 per cent. of the families had medical expenses amounting to more than $150 during the year. These figures would lead us to believe that their expenses for medical and dental care were more uniformly distributed than were their house-painting bills. Certainly they were more uniform than were their expenses for motorcycles and Fords.

I believe that every member of the medical profession should keep clearly in mind the true meaning of this data furnished by the United States Bureau of Labor Statistics. These figures show with unmistakable clearness that as

far as the ordinary run of illnesses are concerned there is no more reason for the doctors' bills being paid through an insurance fund than there is for paying the grocery bills by means of grocery insurance. The longer time credits extended for the payment of medical services as compared with the grocery bills more than compensate for the slight irregularity in the family distribution of the medical bills.

There are very good economic reasons why neither the grocers nor the physicians should be handicapped by the losses due to the attempt to apply insurance where insurance methods are not properly applicable. Grocery insurance would mean that a large part of the funds spent for the family food supply would go not to pay the grocer and the producer of the foods but to support the overhead costs of conducting the necessarily very expensive grocery-insurance business. Likewise when doctors' bills are paid from insurance funds much of the money spent for medical expenses goes not for medical attendance but for the overhead costs of conducting this highly complicated form of insurance. In New York State it costs more than forty cents to distribute each dollar in benefits under the relatively simple provisions of the Workmen's Compensation Act. In the case of workmen's compensation this expense is justifiable because of the necessity of charging to industry the costs of the injuries caused by industry. No like reason exists for burdening ordinary illnesses with similar overhead costs.

In the foregoing paragraphs I have outlined very briefly some of the reasons why sickness insurance of the ordinary short-duration illness type has remained a weak sister in the insurance family. In the first place this form of insurance is too expensive. In the second place the short-duration illnesses are not, as a rule, calamities which can not be met equally well by some other more simple and less expensive and wasteful method than the insurance method. However, we must all recognize the fact that sickness is at times a calamity and that there are a certain proportion of illnesses which extend far beyond the reasonable ability of the inflicted individual, or family, to meet successfully without the aid of insurance.

The advocates of Compulsory Health Insurance tell us that out of 1,000 individuals about one-half of the total cost of all the sickness of the entire group falls upon about 21 individuals. This is approximately the truth and constitutes a strong argument for a properly developed sickness insurance, but it is no argument at all for the type of pseudo-insurance proposed by the A. A. L. L. This is because after using the 21 unfortunate individuals for purposes of argument the Compulsory Health Insurance scheme calmly abandons these unfortunates a few weeks after they enter the hard-luck stage of their illness. While I am absolutely opposed to the house repairs type of sickness insurance, which is exemplified in its most extreme type in the so-called insurance scheme proposed by the American Association for Labor Legislation, I nevertheless believe that the insurance method could be applied so as to give protection against the losses caused by the longer duration illnesses.

Take for instance the case of tuberculosis, doomed to a sickness not of days but of months, what a wonderful social and economic help it would be if each case of tuberculosis were insured by an insurance plan paying two-thirds wages, beginning two or four weeks after the onset of the illness and extending not for three months or six months as proposed in the Compulsory Health Insurance scheme, but until recovery or death. This would be real insurance the economic and social value of which must be self-evident to every physician.

In order to test the possibilities of developing a type of sickness insurance covering the longer duration illnesses, I decided to make the attempt to obtain this type of insurance for myself. I was more successful than I had anticipated, and for purposes of illustration I will tell you what I have done in the matter of insuring myself against the possibility of loss by sickness. Take, for instance, the ordinary sickness and accident policy offered by any of the standard companies. These policies pay a stipulated weekly indemnity for fifty-two weeks of illness. There are also certain allowances for doctor's bills, surgical operations, etc. This was not at all the type of protection that I needed. In the first place all of us can finance the first few months of any sickness which we may have. We can collect the old bills due us, or sell a car, or borrow some money. In the second place this insurance stops at the end of a year, which is just about the time most of us would feel the pinch of a real long duration illness. In the third place this form of insurance is almost prohibitively expensive. A policy giving $500 per month protection for

52 weeks' illness would have cost me approximately $300.00 per year premium.

I figured that a sickness insurance policy giving the kind of protection that I really needed should protect me beginning six months after the onset of any illness and continuing not a few months or a year but until recovery or death. I applied for such a policy, and after some correspondence with the head office of one of the large companies received a special policy paying $400 per month for any disability due to accident or illness, the payments beginning six months after the onset of the disability and continuing until recovery or death. The premium for this policy was only $62 per year, or about one-fourth the cost of ordinary short-duration illness policy. Later this company got out a standard policy with the benefit payments beginning three months after the onset of the disability and extending until recovery or death. This policy is not cancellable, and the yearly premium at my age was $79 per year for a policy paying $500.00 per month for disability due to any cause. I believe that the premium for new applicants has been raised slightly during the last few months, but several companies are now issuing this type of insurance to selected risks at a rate of about $18 per year premium for each $100 per month protection against disability, the payments for disability beginning three months after the onset of the illness and extending until recovery or death.

It is not the purpose of this paper to advertise any form of sickness insurance policy. What I do want to do is to call your attention to what I believe to be some of the fundamental weaknesses of the type of so-called health insurance proposed by the advocates of Compulsory Health Insurance and to indicate what I believe should be the lines of progress if sickness insurance is some day to take its place as an important factor in solving the problem of the hardships produced by sickness.

The medical profession has been time and time again asked to suggest really constructive changes in the scheme as proposed. The first amendment which I would offer to any health insurance scheme, be it voluntary or compulsory, would be to eliminate all provisions for fund-paid medical services. The medical profession of this country knows that the employed wage-earner is abundantly able to pay the ordinary expenses for medical care. It makes no difference whether he can or can not, neither the patient or the physician can possibly be benefited by adding the additional handicap of overhead expenses, fraud and red tape known to be inseparable from any scheme of fund-paid medical services. A few years ago, when the Compulsory Health Insurance agitation first began, we did not have at our disposal the statistical data to prove what we all knew in a general way to be the real truth in regard to the impracticability of paying doctor's bills out of insurance funds. Today, thanks to the rapidly accumulating data on the subject, there is, I believe, abundant data to prove to any fair-minded person that the insurance method is not the best method by which to pay the doctor's bills in the ordinary run of illnesses.

As a second fundamental change in the scheme as proposed I would eliminate from the insurance plan all those non-disabling and short-duration disabling illnesses which by no stretch of the imagination can be considered to represent financial disasters which cannot be borne readily by the individual or the family group. The plan of so-called insurance proposed by the Compulsory Health Insurance advocates actually specializes in this type of illnesses, yet to include them means that we must neglect the long-duration illnesses which most need the insurance, and, what is equally bad, it means that a large proportion of the funds must be inevitably wasted because of the premium placed on the over emphasis of minor ailments. The waiting period should be at least two weeks, and in many cases a waiting period of four weeks might be even better, or a waiting period of two weeks, then two weeks of half-rate payments and full benefit payments after the fourth week.

As a third fundamental change I would continue the benefits not for twenty-six weeks as proposed by the Compulsory Health Insurance advocates but until recovery or death. The studies of the Illinois Commission show that the twenty-six weeks' insurance would eliminate only a very small proportion of the poverty caused by illness. The long-duration illness insurance would eliminate almost all of the poverty due to sickness. As I have already shown the elimination of the short-duration illnesses and the fund-paid medical services from the insurance scheme would make it readily possible to extend the period of protection so as to include the long-duration illnesses until recovery or death.

That the great commercial insurance companies are beginning to recognize the necessity

of the long-duration as compared with the shorter-duration sickness insurance is shown not only by the type of long-duration illness policy issued to selected risks which I have already described, but also by the group policy now issued by several companies for factory employes. The policy provides weekly benefits upon proof of total incapacity resulting from sickness or accidental injury. No benefit is payable under the policy for the first seven days of incapacity, nor for the first four weeks of insurance. The benefits are divided into three periods. During the first period of 26 weeks full benefit is paid; during the second period of 234 weeks, or 4½ years, one-half benefit; and during the third period, running to age 65, one-quarter benefit. In order to discourage malingering, the weekly benefit, including any other existing insurance or benefits, is limited to two-thirds of the average earnings for six months prior to incapacity. Special provisions are made for the amount of benefit to be paid in various cases of recurrence of incapacity. The policy is non-participating.

It will be noted that in this policy they have entirely discarded the idea of paying the doctors out of the insurance fund, and that in place of the contract medical service they give 4½ years of one-half benefit and after this period one-quarter benefit to age 65. Although I would myself recommend a two weeks' waiting period and a much longer period of full benefit payments, I do heartily approve of the general principle of the group policy as described above, and I believe that the medical profession can heartily endorse such insurance, which is based on a model fitting American conditions, and which is totally different from the European pauper labor model of so-called health insurance proposed by the American Association for Labor Legislation.

AVERAGE COST PER FAMILY OF DENTAL AND MEDICAL CARE AS PER STATISTICS OF UNITED STATES DEPARTMENT OF LABOR

AVERAGE COST PER FAMILY PER YEAR..$44.64

Total families	1,214	
No expense	8	0.7%
Less than $1	5	95.8%
$ 1.00 to $ 10	201	
$ 11.00 to $ 20	201	
$ 21.00 to $ 30	193	
$ 31.00 to $ 40	154	
$ 41.00 to $ 50	122	
$ 51.00 to $ 75	157	
$ 76.00 to $100	85	
$101.00 to $150	54	
$151.00 to $200	20	3.47%
$201.00 to $250	7	
$251.00 to $300	5	
$301.00 to $350	4	
$351.00 to $400	1	
$401.00 to $450	2	
$451 and over	3	

Above table is taken from the Report from the Special Committee on Social Insurance of the American Medical Association, 1919, page 34.

VOLKMAN'S CONTRACTURE OF THE FOREARM*

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PEORIA, ILLINOIS

On March 16, 1903, M. H., aged seven years, living at Vandalia, Illinois, was playing on a hay stack ten feet high, and fell off, breaking both bones of the left forearm at the juncture of the upper and middle thirds. Dr. M. was called and applied anterior and posterior splints, and a small interosseous splint, all of wood, padded with cotton, which were bandaged snugly to the forearm. The splints were removed in three weeks and judging from appearances a good result had been secured. There was good union and an almost normal contour of the forearm.

But the parents soon noticed that the thumb and fingers were closing down into the palm of the hand, and there was little or no sensation in the third and fourth fingers. An effort was made with massage and manipulation to overcome the condition, but it grew worse in spite of all efforts.

In June, 1903, he was brought to the St. Francis Hospital in Peoria. A typical Volkman's contraction of the flexor muscles of the forearm was found. (Fig. 1.) When the wrist was flexed the fingers could be made straight, but the fingers and wrist could not be extended at the same time. The finger nails showed degeneration, the entire hand was smaller than its mate and bluish in color, and there was no sensation in the third and fourth fingers. A radiograph was taken which showed a fracture and faulty union of both bones (Fig. 2), but the fracture of the ulna seemed to be causing the most trouble, judging from the facts that the muscles flexing the fingers lie more to the ulnar side of the forearm, and the third and fourth

*Presented before the Western Surgical Society, Kansas City, Missouri, December, 1919.

fingers, the fingers supplied by the ulnar nerve, were anesthetic.

On June 11, 1903, a longitudinal incision was made along the posterior surface of the forearm over the ulna. The muscles and fascia were

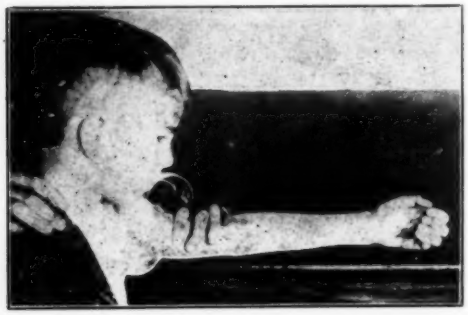

Fig. 1. Showing typical Volkman contraction of left forearm.

separated from the bone, except at the point of fracture where it was impossible. The muscle and fascia had been transfixed by a sharp fragment of the fractured ulna. A portion of the

Fig. 2. Showing mal-union of left radius and ulna.

muscle and fascia was caught in the callus, which had to be cut before the muscle could be freed. A partially organized hematoma, about three centimeters in diameter, was found in the muscle near the site of the fracture and removed. Neither the hematoma nor the transfixed muscle could be detected by the x-rays.

The ulna was sawed through at the point of fracture with a Gigli saw, and the ends were trimmed off and united in a better position with two aluminum-bronze wires. (Fig. 3.) The muscles and fascia were separated from the fractured point of the radius as much as was possible through that incision. While he was under the anesthetic his fingers were forcibly extended considerably, but it was impossible to extend them completely. The fascia and skin were united with two longitudinal aluminum-bronze wires,

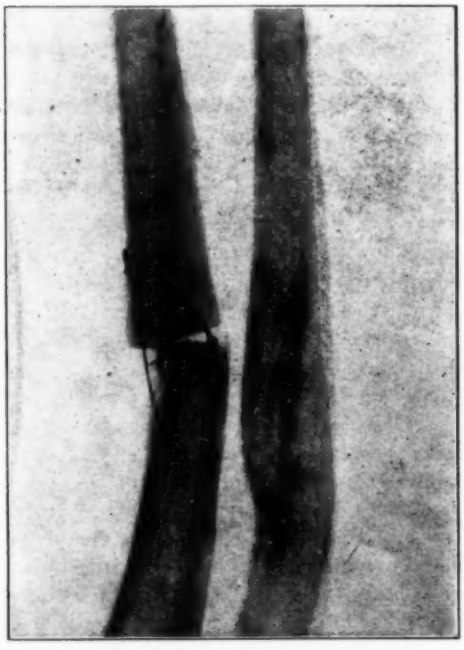

Fig. 3. Showing refractured ulna re-united with aluminum bronze wires.

and the forearm was placed in an ulnar splint of perforated tin.

The patient left the hospital for his home on June 20. An earnest effort was made from then on to overcome the contracture by massage and manipulation of the hand and fingers. After the ulna had united, the muscles of the forearm were thoroughly massaged each day. The boy's mother worked very faithfully with his hand and forearm, and the improvement during that time was no doubt largely due to her efforts. Sensation returned to the third and fourth fingers, and the general condition of the hand became

much improved, but the boy could not extend the fingers.

On August 17, 1903, at the patient's home in Vandalia, a longitudinal incision was made in the center of the anterior surface of the forearm,

Fig. 4. Showing Volkman's contraction of left forearm completely relieved sixteen years afterwards.

two inches long, beginning at the wrist. The tendons of the flexor profundus digitorum were lengthened by the ordinary stair step method, and the ends were united with catgut. This was not sufficient, so the tendons of the flexor sublimis digitorum were also lengthened. Then all the fingers could be completely extended without resistance. The tendons of the thumb were left alone as its condition had improved very much under the massage. Union occurred by first intention, and in ten days the boy could move his fingers. The improvement from then on was rapid and satisfactory.

A history of the case was published at that time.[1] I have two reasons for reporting this case at this time. First, I want to show you the ultimate results, sixteen years afterwards, of one tendon-lengthening operation for Volkman's contracture of the forearm. (Fig. 4.) Second, a recent article[2] says:

"In view of the mechanical shortening of the sclerosed muscles, artificial lengthening of the flexor tendons at the wrist has been tried. The disadvantages of this operation are the extensive dissection which is required and the prolonged after-treatment of the wound."

"A simpler operation is one which shortens the bones of the forearm by excising an inch, or more, of both radius and ulna, so as to allow of the fingers being placed in a position of extension and even slightly hyper-extension. The patient then has a shorter forearm but a more useful hand. The drawback to this procedure is the tendency to the formation of still more scar tissue by operating on an already sclerosed limb."

The lengthening of the tendons in this case was done at the patient's home, and I did not consider it an extensive dissection. There was no prolonged after-treatment, and I am sure the procedure was much simpler than a resection of the bones of the forearm would have been. The final result in this case shows no deformity, while a resection of the bones of the forearm would have left a shortened forearm.

This patient was received into the Service without question during the late war and served his required time in the army.

Incidentally an x-ray picture (Fig. 5) of the forearm taken a few months ago settles a question that was often asked fifteen or twenty years ago. Was aluminum-bronze wire finally absorbed by the tissues? A good many contended that it was. This picture shows the two loops of

Fig. 5. Showing fractured ulna and radius sixteen years after union with the aluminum bronze wire enclosed in bone and unabsorbed.

aluminum-bronze wire that I put in more than sixteen years ago still intact and unchanged in any way. They have become completely enclosed in bone as the patient grew to manhood. A little piece can be seen lying in the soft tissues that

[1] *Interstate Medical Journal*, August, 1909.
[2] *British Medical Journal*, 1918, II, 151.

evidently fell there when the twisted ends were cut off with scissors at the time of the operation, showing that the soft tissues produce no more impression on an aluminum-bronze wire than bone.

This patient was seven years old when he received his injury, which was in the period of from one to fourteen years when Volkman's contracture usually occurs. It has always seemed to me that there must be other factors besides a tight bandage or we would surely see such cases more frequently. In this case I believe that the transfixing of the muscles by the fragment of the ulna, and the hematoma, with probable impairment of the blood current and blood supply, had as much to do with the ensuing contraction as the splints and bandages.

You will note that manipulation was used before the malunion of the ulna was corrected. The tendons were not lengthened until two months afterward, and during that time manipulation was used. I think it important that manipulation and massage be used until the contracting process has ceased. I had not heard of the Robert Jones method at that time.

SOME PRACTICAL PHASES OF LOCAL ANESTHESIA.*

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In the use of local anesthesia we have not yet reached that ideal of perfection to which all honest effort hopes to attain. However, in the hands of a thoughtful and careful operator it gives such satisfaction that we are stimulated to further endeavor.

Results are what count and ideal results should be our only goal. If I am able to say something that will renew your interest and assist you in obtaining better results or to approach that ideal of perfection in local anesthetic application, that will be my reward.

The various therapeutic preparations, their chemistry and action, and the principles underlying the use of local anesthesia are too well known or readily found in current literature to warrant any repetition at this time. However, I feel that we owe it to ourselves to pause occasionally and spend a few moments in considering the more practical side of this subject and review a few of the points that may enable us to apply those agents with more accuracy and satisfaction.

I have been assured by chemists and other scientists that certain chemical compounds exist which will produce anesthesia when used under proper conditions and further they have assured me that these same compounds are relatively free from any deleterious action. In these men and their formulæ I have placed my confidence and I am frank to state that I have not been betrayed.

Those of us whose duty it is to apply these same formulæ have not the time nor facilities for proving the claims made by their originators, except by clinical application. Surely one needs but little clinical experience to be convinced that their claims are just and right. These preparations are now easily available. There exists at present almost an ideal relationship between the producers of these preparations and the clinician. Practice has so well proven their claims that little discretion need be used in the choice of one of our standard anesthetic preparations. As new Preparations are offered to us great care and close application must be insisted upon before they are received into the family of local anesthetics.

If the same scientific cooperation could exist between the producers of all therapeutic agents and the clinicians as there now exists between the producers of anesthetic formulæ and the clinician, the millenium would be at hand. Unfortunately the action of most therapeutic agents is not as accurate as the local anesthetics and then strictly scientific advance is not in keeping with commercial activity thus the source of error is diffieult to eradicate.

The Operator. There are certain phases of the life of the surgeon that must be developed or educated before he can hope to use successfully any local anesthetic agent. First he must learn to approach his patient in such a way as to stimulate confidence and thus enable him to secure the proper amount of cooperation. Until such a time as the fear of pain can be controlled by confidence or some other force your patient will not be in sympathy with your efforts.

Secondly, the surgeon must realize at once that he is his own anesthetist and the proper amount of time and effort to put the part to

*Read before the 70th annual meeting of the Illinois State Medical Society at Rockford, May 19, 1920.

sleep must be consumed before the patient is ready for operation. The present day surgeon has been trained to approach his victim with scalpel in hand and at once makes the incision, while in local anesthetic work he must approach his victim with the hypodermic and sufficient scientic consideration to carry him through a period of ten to twenty minutes or even longer, during which time he will carefully inject the anesthetic and wait patiently for it to take effect. When sufficient time and anesthetic have been consumed the part is ready for operation, just as it is when the ether has been dropped gently and slowly until narcosis is produced. When the surgeon has carefully carried himself and his patient through this stage he is ready for the operation and should proceed just the same as though the patient were in deep anesthesia.

At this time the patient should be instructed that he will feel a tugging sensation as though some one was pulling at his clothing, but he should not complain unless real pain is experienced. When the pulling or tugging sensation is experienced the patient is well convinced that the next second will bring pain and he will often complain when he will admit at the same time that he did not experience real pain.

The psychic side of local anesthesia. Most patients are apprehensive. There are but few with implicit confidence in the efficacy of your flaunted remedy to take away or ward off the pain. Many are stimulated to a high state of excitement by the mere thought of an operation. To be cut is to suffer pain in the minds of all. The elements of fear, pessimism and mental alertness must be well under the operators' control if he wishes to be successful, and the pessimism is the one great factor that must be removed.

Children are more easily influenced from the psychic side than the adult. They are not aware of what operative procedures really mean; they do not think as well for themselves and they are far more open to suggestion.

Allen has made a careful study of this phase of local anesthesia and gives the following resume:

With the attention fixed on the idea that pain is to be inflicted and all the senses keenly alive and active, awaiting the impression, the least touch or manipulation may excite the idea of pain and cause the patient to cry out.

Pain may be to many an incident of little concern; they are either anesthetic or stoical, feeling very little or are able to control their expression of pain. Others are hypersensitive or hyperesthetic, either being extremely susceptible or they possess little or no control over their feelings. These differences are largely individual, although there exists certain factors as race, age, social and educational status of the individual which influence the susceptibility. It is likely true that the dark skinned races, the Slavs and Teutons are less susceptible to pain than other races as the Latin and Semitic stock. Old age generally is less susceptible than youth or adolescence, due to the more sluggish condition of the nervous system, while infancy, due to psychic influence and poor sense of locality, may bear certain pain well, but is easily shocked by severe trauma.

The social condition, refinement and educational status and occupation have much to do with the susceptibility to painful impressions as we would naturally suppose. Thus a highly refined individual following an intellectual pursuit would be expected from his mode of life, breeding and occupation to have a more highly developed and sensitive nervous system than the laborer or farm hand, accustomed to exposure to the knocks and buffs of hard life. Sensitiveness to pain varies with individuals; a person with a strong will may suffer great pain without flinching, while a mere trifle may cause great complaint from another. Those thin of build and neurotic temperament suffer more than hardy and stout individuals with exaggerated reflexes, as lively knee jerks. The very ticklish and those who are easily startled and highly nervous, bear pain badly, while those not so responsive make less complaint. This establishes an association between reflex activity and sensitiveness to pain.

Advantages of local anesthesia.

1. Local anesthesia has been a great blessing to the operator as well as to the patient, and in many cases its superiority over general anesthesia is so great that the element of comparison does not enter the discussion.
2. It removes at once all the dangers and disadvantages of a general anesthetic and these alone are sufficient to prompt the careful operators to favor local.
3. Does away with surgical shock.
4. Shortens the time of preparation and thus the operation. The patient may be operated upon in the office or immediately after entering the hospital regardless of full meal or other coexisting conditions.
5. It obviates the necessity of calling another man to give a general anesthetic especially in all minor work.
6. Does away with the necessity of a twenty-four to forty-eight hour stay in the hospital,

which is essential following the use of a general anesthetic.

7. Induces many patients to submit to surgical procedures by removing that fear of a general anesthesia.
8. It can be used successfully in some cases where a general is contraindicated.
9. As shown by Geo. W. Crile, local anesthesia blocks the nerve impulse and thus prevents nerve exhaustion, while an ether anesthesia acts like a veneer during an operation and does not prevent traumatic nerve impulses.
10. The operator's peace of mind and clearness of conscience in these cases fully repays one for the extra effort often necessary to obtain good results.

Disadvantages of local anesthesia.

1. That local anesthesia has its disadvantages must be admitted and its use should be determined only by the weight of evidence in favor of or against it in any given case.
2. That it cannot be used in some cases is certain.
3. In other instances the cooperation of the patient as obtained by a general anesthesia is impossible with local.
4. That it may in rare instances interfere with healing of the wound cannot be disproven.
5. That it may increase the dangers of infection is a point well taken.
6. The hypnotics used in conjunction with local anesthesia are not entirely free from danger.

Indications. It was the custom a few years ago to teach that the only indications for local anesthesia were the contraindications for a general anesthesia, but today local anesthesia is certainly indicated in any operation where it can be used with satisfactory results, and when it does not delay the patient's recovery. This has come to include all minor surgery and has so invaded the field of major surgery that the general anesthetic is rapidly approaching the discard.

Contraindications. General anesthesia will always find an important place in surgery and in the hands of the skilled anesthetist its dangers will be lowered to a minimum, and with such skill at the command of the operator many of the major surgical procedures can be carried out more safely and more satisfactorily when general narcosis is obtained.

We are thus safe in saying that local anesthesia is contraindicated when—

1. Local narcosis cannot be produced.
2. When better results are offered by general narcosis.

Preparation of the patient. In a great many instances no preparation is needed except that of the field of operation. Most patients who are to undergo a minor surgical procedure can very quickly be persuaded that everything can be taken care of without discomfort to themselves, but when a major or extensive operation confronts the patient it is far more difficult to overcome that element of fear and to allay that pessimistic attitude.

For the average patient it is well that he should enter the hospital the preceding evening and receive the proper preoperative treatment and have the field of operation prepared according to recognized surgical principles. During the few hours just preceding the operation the mental excitement is prone to reach a high tension and in most patients this becomes so evident that unless something is done to counteract it the patient is in an unfavorable state of mind for the use of a local anesthetic.

It is my opinion that in most cases the operator as well as the patient will be able to carry out his part more effectively if this mental unrest is in part overcome by a preliminary hypnotic. In this part of the work I have not followed any fixed rule but have tried to treat each case with due consideration. With the extremely pessimistic and over anxious, more hypnotic is required, while in the more reserved and reconciled, a moderate amount or none, as the operator decides. Morphin, gr. 1-6, and Scapolomine, gr. 1-100, hypodermically about a half to one hour before operation is all that is needed; in other cases a quarter and a fiftieth are required. Chloretone gr. X or XX an hour and a half preceding operation with gr. X three quarters of an hour before, will work well in some cases. While I have not given it a trial, I have every reason to believe that moderate doses of bromides an hour or more preceding would work well in other cases.

When the patient is thus prepared he arrives at the operating table in a condition where he can answer all questions intelligently and is perfectly conscious, but his mental activities are benumbed, to the extent, that he has lost interest

in his surroundings and he is not disturbed by the ghostly appearance of the operator and his associates. When the anesthetic needle punctures his skin he realizes that something has happened, but the sensation of pain is so far overcome that he forgets it almost instantly and rarely makes any subsequent complaint.

Anesthetic preparations. The literature abounds with the merits and demerits of a large number of local anesthetic preparations. Most of these have reached the discard long ago, but there are a few preparations that are definite in their action and have withstood the attacks of scientific onslaught so well that they have rightfully attained an enviable position in our armamentarium. Cocain, one of the oldest and most respected, has such a definite and efficient action that it needs no discussion, but carries with it that reputation of being so treacherous that its use is almost limited to the anesthetizing of mucous and serous membranes.

Novocain, a more recent addition to our list, has gained the favor of numerous operators and has proved itself to be efficient and almost harmless, and since the German patents have been cancelled and American manufacturers permitted to produce it, it is very easily obtained.

Apothesine, about the last to be added to our list, has received very wide endorsement and has been used during the past two or three years probably more extensively than any other local anesthetic preparations. During the recent war novocain was not available for a long time and I soon found apothesine a very serviceable remedy and have used it almost exclusively for more than three years.

It has been found that all these three preparations are efficient in solutions of from a quarter to 1 per cent. Cocaine, being the more toxic, is used in the weaker strength. Novocain and apothesine in solutions of ½ to 1 per cent can be used with the best of success and used in large quantities because of their low toxicity. Of all known local anesthetic remedies apothesine is probably the least toxic. I have used it repeatedly in major operations, three, four and even five ounces of a ½ to 1 per cent solution, and have never witnessed any toxic effects. When injected subcutaneously or beneath the mucous membrane, it fills all the requirements of any local anesthetic, and is for all practical purposes free from any deleterious effects.

Technique. For a detailed technique for the use of local anesthesia I should like to refer you to Braun, who gives very minute instructions for the various operative procedures. However, I want to impress upon your minds that the principal underlying the use of local anesthesia is based upon Crile's proof of the efficiency of cosain, when injected into a nerve trunk, to produce the so-called "Block" so that neither afferent nor efferent impulses would pass.

When any operation is to be done under local anesthesia, whatever the method or location of the injection of the solution, either the large nerve trunks or the smaller branches are effected and thus "blocked."

It is my impression that in most operative procedures it is not practical nor entirely safe to seek for and inject the main nerve trunks nor even the larger branches, when results can be obtained by moderately extensive subcutaneous injections.

Intradermal applications of a local anesthetic are useless, ineffective and even dangerous if made along the line of incision. It is also true that in most instances deep seated injections are not necessary when the solution is introduced some distance proximal to the operative field. The free use of subcutaneous injections on the proximal side will in most cases anesthetize both superficially and deeply. In laparotomies and in bone work deep injections may be indicated. In abdominal work, when the peritoneum is reached, the use of an angular needle to inject between the peritoneum and the overlying muscle will produce complete anesthesia of all the deeper layers.

Results. Primary union of all wounds other than septic is to be expected. I have yet to see any disturbance in the healing of the wound that I could attribute to the anesthetic; healing takes place as in cases of general anesthesia. All nerve tissue which is reached by the anesthetic has its functions temporarily suspended and this lasts for a period of from one and one-half to three hours. There has never been any excessive scar, keloid or painful scar, nor any evidence of subsequent derangement of nerve function.

Conclusions. As I stated in the beginning of this paper, "Ideal results should be our only goal." With my present experience I am free to say that from an anesthetic standpoint I am in close proximity to an "Ideal." I have but

one failure to record in the last forty cases and that I appreciated then, as I do now, was a very favorable one. R. E. Farr in the *Journal A. M. A.*, December, 1919, records 551 cases with less than 2 per cent. of failures.

The element of time plays a most important part in local anesthesia. After injecting your solution, time must be allowed for it to act, and this varies in different cases and conditions from a few minutes to fifteen or twenty. We are all inclined to impatience, and this alone will lead to failure many times.

The psychic element is extremely important, and unless you can control it you are doomed to failure. Children are more easily influenced than adults.

Those of you who are skeptical should be open to conviction and begin now to re-educate that side of your make-up and thus give your patients the advantages of local anesthesia wherever possible and take away that element of danger that goes with ether and chloroform.

That local anesthetics are a success is undeniable, and this success is yours with but little effort.

We owe it to our patients and ourselves to make more extensive use of these preparations and thereby contribute more to the art of surgery and the science of medicine.

REFERENCES

1. R. E. Farr: Jour. A. M. A., Dec., 1919.
2. R. E. Farr: Interstate Med. Jour., Feb., 1919.
3. Joseph Wiener: Med. Record, Jan. 25, 1919.
4. George W. Crile: Certain Problems relating to Surgical Operations, 1901.
5. George W. Crile: The Origin and Nature of the Emotions, 1915.
6. Braun-Shields: Local Anesthesia, 1914.
7. Allen, C. W.: Local Anesthesia, 1918.

DISCUSSION

(Abstract)

Dr. Sloan (Bloomington) thought this subject very important and complimented the doctor on one of the best practical papers.

He finds radical operation to remove a gland in the neck is easier to perform with local anasthesia, because the muscles and layers of fascia are differentiated by the anesthetic solution if you inject it.

Inguinal hernia is much easier to do under local than general, injecting first in the subcutaneous tissue and then down in the canal before you cut. If you fill the inguinal canal full of a weak solution, you will have every structure differentiated and it will make the dissection easier.

Amputation of the breast is another operation that is in his experience easier to do with local than with general.

In the serious cases of gall bladder disturbance, where you need to do a colocystotomy and the patient can't stand general, you will be surprised how easy it is to make the opening down through the abdominal wall and manipulate the patient and the table so that the gall bladder will come right up in the incision.

Dr. Van Housen (Chicago): I would like to ask Dr. Harger if he uses the local anesthesia in carcinoma of the breast and malignant diseases, and if he feels there is any danger of transplanting or grafting the malignant disease; also what he does in cases of wide infection?

Dr. Beveridge (Oregon): I would just like to say a few words from the viewpoint of the patient. A few months ago I had an operation for double hernia, direct inguinal hernia on both sides, both sides getting very large, under local anesthesia. I certainly was very well satisfied with the experience. There was absolutely no pain in the cutting or suturing or any part of the operation. I expected pain when they came to pulling up on the sac, but there was no pain at any time worse than the hypodermic injection when the first solution was given. The advantages were that I was able to eat half an hour after I came from the table; didn't miss a meal. I was on the table over three hours, and for that kind of an operation, in the hands of a competent surgeon, one who understands giving a local anesthetic, I think it is greatly to be commended.

Dr. Harger (closing discussion): In answer to Dr. Van Housen's question, I have not used it in carcinoma of the breast, but it can be used, I am sure. I simply haven't had a case where I thought that I could get better results in that way.

In an infection like a felon, I simply inject around the base of the finger and then go ahead and clean out the felon just the same as though the patient were asleep.

With osteomyelitis of the forearm, I make an injection above the elbow. In an operation on the foot and on the ankle or heel, I make an injection subcutaneously completely around the leg. In foot operations, especially, I make an injection above the ankle. In some of those cases, I felt that it was wise to get some of the anesthetic near the main trunk, but never to dissect them out or pick them out and inject.

As a personal experience, I had an operation myself last year under local anesthesia; that was one of the things that stimulated me to further endeavor. It brought this point to me, that in hernia work and abdominal work, I inject subcutaneously an elliptical area around the field of operation, and cut down to the peritoneum. Then I take an angular needle and run it along between the peritoneum and the overlying muscle and inject a little anesthetic around there. I believe that in some of those hernia cases unless you inject around the neck of the sac, the patient is going to suffer pain when the sac is manipulated. I still maintain that it is not necessary to inject into the line of incision either in the skin or the deep tissues. If there are any ill effects from it at all it might interfere with the healing.

In goiter work, I inject at the angle of the jaw and

inject down to the clavicle and then under the chin and just above the sternum, and you are entirely outside the field of operation.

As for the technique of injection, most of you are acquainted with Braun on Local Anesthesia, and he gives a detailed description. I have not followed it closely, but his book is full of good information.

REMARKS ON THE ENDOCRINE SYSTEM*

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Recently the lay press contained some glowing accounts of the rejuvenation to be accomplished by transplanting goat or monkey glands into various parts of the human economy. This shows that even the laity is becoming interested in the "Endocrine System." This paper originally contemplated making a few definite statements regarding the functions of each member of the system, the conditions arising from their over and under functioning, and the indications for their various extracts in therapeutics. But definite statements are hard to make because much of this ground is still debated territory. However, a consideration of their functions shows that they influence oxidation, metabolism and nutrition, and through these the growth and development of body and mind; while the use of their extracts is a distinct and positive aid in all disorders arising from their disfunction.

Susruta, about 1000 B. C., was the first to make use of the internal secretions. His Liquor Vitae was a testicular preparation. The Pharmacopeia Germanica of the sixteenth century mentions Cranium Humanorum and Oleum Ossium Humanum. Twenty-nine hundred years then passed between Susruta and Brown-Sequard's testicular therapy—the next effort to master the secretions. Of recent years a great amount of work has been done along these lines, resulting in the development of endocrinology.

The term endocrine system, as used by Eppinger, Hess and others, includes all glands of internal secretion. They are the pituitary, thyroids, parathyroids, thymus, adrenals, pancreas, ovaries, testicles, the pineal body and the spleen.

The adrenals, pituitary, thyroid and parathyroids are functionally united forming the "Adrenal System." This is also called the "chromaffin system," because the chromaffin tissue is the adrenalin-producing tissue, according to Eppinger and Hess, who states: "The so-called chromaffin cells are the adrenalin forming cells." The term was first used by Stilling. It is a grouping of tissues according to a staining reaction.

The function of the adrenals is to sustain pulmonary and tissue respiration. Embryologically the adrenal cortex resembles the interstitial cells of the ovary. Bandler believes the cortex is the more important element from the standpoint of the gynecologist. The adrenals are responsible for the Chloasma of pregnancy. In rabbits removal of the ovaries causes hypertrophy of the adrenal cortex; and, also, the reverse is true.

Hyperadrenia means hyperoxidation and hyperactivity of all organs resulting in glycosuria, psychoses and pulmonary edema. Of the hyperactivity of the cortex alone the stigmata are: overgrowth of hair, marked muscular development and obesity in males, while a child may attain the size and characteristics of an adult. We know the chemical formula of adrenalin and have produced it synthetically.

In hypoadrenia the stigmata are: muscular weakness and emaciation, weak heart and pulse, low blood-pressure, constipation, sensitiveness to cold, defective hair growth, pallor, mental torpor, and slow intellection.

Sajous holds adrenal preparations exceed other means in Addison's disease, in surgical heart-failure, toxemias, capillary hemorrhage, asthenic cardiac disorders and asthenia.

The best known test for adrenal insufficiency is Sergent's "white-line" test. It is obtained most readily by having the patient lie quietly in bed for a short time and then stroking the skin, preferably of the abdomen or thigh, lightly with the palmar surface of the index finger. In ten to twenty seconds there will appear a blanching of the skin thus stimulated. Previous emotional disturbance will nullify the test.

Of the pituitary the anterior and posterior lobes exercise different functions. The anterior has to do with the growth of the skeleton, the development of the genitalia and secondary sex characteristics. It presides over muscle tonus and to a less extent over temperature, pulse and blood pressure. The anterior also is concerned with the size, shape and arrangement of the

*Read at staff meeting, Washington Park Hospital, April 2, 1920.

teeth and the amount and distribution of the hair. Its hypo-activity before puberty results in an undergrowth of all bones. The person so affected is apt to be short, to have small hands and feet, with a broad feminine type of pelvis. The genitalia will be infantile and the secondary sex characteristics absent. The temperature will be subnormal, the pulse slow and the blood pressure low. Its postadolescent hypo-activity results in an undergrowth of the short and flat bones only; the long bones will be normal, having already largely attained their growth. The temperature, pulse and blood pressure are all apt to be subnormal.

The preadolescent hyperactivity of the anterior lobe results in an overgrowth of all bones—gigantism—with an overgrowth or at least normal development of all parts and functions of the body. Its postadolescent overactivity is accompanied by an overgrowth of the acral, short and flat bones—acromegaly—with a short or normal stature.

The posterior lobe presides over metabolism, carbohydrate tolerance, adiposity polyuria, involuntary muscle contraction and somewhat over the nervous system. Its underactivity is accompanied by a decreased basal metabolism and an increased carbohydrate tolerance. There is a marked girdle, mons and mammary adiposity. Involuntary muscle contractions are weak or absent. There is mental apathy and frequently somnolence present. Hyperpituitarism of the posterior lobe gives rise to an increased basal metabolic rate and a decreased carbohydrate tolerance. Adiposity and polyuria are absent. Involuntary muscle contractions are present and there is frequent intestinal spasticity. There is also hyperactivity of the thyroid and psychic instability.

Therapeutically Bandler states that it has a decided effect in reducing the size of the uterus and in reducing the flow in menorrhagia and metrorrhagia, especially when combined with mammary extract. Lately it has been used with some success in the treatment of epilepsy. We are much more familiar with the extract of the posterior lobe. The tale of its use and abuse in obstetrics alone would make a chapter. It is used with great success in the treatment of undersized or backward children, and in postoperative shock and intestinal atony.

In cardiac disorders, it raises the arterial tension and corrects purely functional disorders of rhythm. Lenard Williams regards pituitary preparations as superior to any other remedy in the "runaway heart of toxic states."

In infectious diseases Rénon and Azam give these phenomena as indicating the need of pituitary:

1. A fall of the arterial tension.
2. Quickening of the pulse and consequent insomnia, anorexia, abnormal sweating and heat flushes.

Under the use of pituitary there occur:

1. Increase of arterial tension.
2. Slowing of the pulse with increase of power and amplitude.
3. Increased diuresis.
4. Increase in weight.
5. Hastening of convalescence.

In acromegaly pituitary extract relieves the headache, lethargy and amnesia.

In exophthalmic goiter Rénon and Délille report considerable improvement by use of pituitary gland.

The marked advantage of pituitary preparations is that they sustain the rise of blood-pressure, which they produce, much longer than does adrenalin. They sustain temperature and muscular tone longer than adrenalin and with the advantage that they can be administered by mouth without compromising their effects. The latter is Sajous' point but Christian states that pituitary substance, in liquid form, introduced *subcutaneously*, had a striking effect on urine excretion (decreasing it to normal if sufficient gland substance was used), whereas other ways of giving gland substance had a negligible effect.

In regard to the thyroid gland, its function and the consequences of its removal and of its hyperactivity are well known. But the subject of hypothyroidia is not so generally understood. The usual symptoms are: subnormal temperature, cold extremities, myxedematous or dry, doughy, scaly skin, dry, brittle hair and nails, and mental deficiency. When subthyroidism is combined with adrenal insufficiency Blumgarten adds these symptoms: persistent pains in the neck, spine and lumbosacral region.

Thyroid extract in small doses, especially in hypothyroidia, results in a rise of temperature, enhanced metabolism, increased appetite, marked improvement in general nutrition and strength, rapid growth and the cerebro-spinal system is in-

fluenced through the wealth in phosphorus. Thyroid preparations are valuable, especially in:

1. Diseases due to slowed destruction of toxic wastes—as in tetany, epilepsy, eclampsia, disorders of the menopause, and asthma.

2. In diseases due to lowered general nutrition of all tissues, including the bones—as in cretinism, myxedema, osteomalacia and rickets.

3. In disorders due to lowered nutrition of the muscular elements—in general adynamia, neurasthenia and myasthenia.

4. And in all cases in which the process of repair or absorption are deficient—as in delayed union of fractures and bone necrosis.

Berkeley feels that the underlying cause of dementia precox may be excess of thyroid. Bandler believes it is due to some interglandular upset not necessarily the thyroid.

There are two tests for hypothyroidia. The therapeutic test and the measurement of the basal metabolism. In a suspected case if the administration of desiccated thyroid, gr. I, t. i. d., for two weeks does not cause an improvement, the therapeutic test is negative. The measurement of the basal metabolism is much more accurate. It is performed as follows: the patient goes to the laboratory in the morning without breakfast. He lies quietly in bed for twenty minutes, during which time his pulse, respiration rate and blood-pressure are taken. The test proper is begun by tying a mask over the patient's face and collecting the total expired air over an accurately timed period. Its volume is measured and the temperature and barometric pressure recorded. Samples are analyzed to determine the percentage of oxygen and carbon dioxide. From these data the total hourly heat production can be calculated and the results compared with normal standards. Variations of 10 per cent. are disregarded.

The function of the four parathyroids is to neutralize toxic substances formed elsewhere in the body. They are concerned with the regulation of metabolism of the guanidin compounds in the body. Gley has shown the proportion of iodine in them is much greater than in the thyroid proper. The action of the parathyroid hormone is similar to that of ergotin.

Hyperactivity is associated with exophthalmic goiter. Lunborg and Berkeley feel that paralysis agitans is specifically the syndrome of hyperparathyroidia. Berkley first used parathyroid extract in cases of paralysis agitans; a large proportion responded slowly, the rest showed marked improvement. He states that the administration of parathyroid extract by mouth or an acetic acid extract of the fresh gland in solution has been given in this disease with benefit.

Hypoactivity is seen in infantile tetany and in intestinal tetany.

The thymus is concerned with the process of growth. It and the pineal body are glands which should atrophy at puberty. If they cease functioning before, precocious puberty results; if they persist after, infantilism and sex reversion result. The function of the thymus is to supply the excess of phosphorus in organic combination needed for development and growth. It produces nucleins until the bone marrow and the lymphatic glands can take up the work.

Removal of the thymus in animals results in stunted growth, soft and deformed bones (later becoming brittle), somnolesence, depression, cachectic coma and death—in general the condition resembles rickets.

Overfunction is distinguished by marked emaciation, dilation of the heart, and sweating, all of which occur because the thymus is an organ of only temporary usefulness and if it continues active when the bone marrow and the lymphatic glands are able to produce nucleins, an excess of nucleins results.

Thymus deficiency means inadequate assimilation of calcium and a low lymphocyte count and produces stunted growth and bone deformities, rickets or osteomalacia, deficient mental development.

Thymus extracts in simple goiter are very efficacious. Solis-Cohen states that in exophthalmic goiter it sometimes lessens the nervous symptoms. It is of doubtful benefit in rickets. Some observers claim good results in arthritis deformans.

Besides acting individually, these glands apparently combine in various ways for team work. The thyroid, parathyroids, adrenals and pituitary have been mentioned as forming the immunizing mechanism of the body. The fact that the Schick test shows one child immune and another not, is probably due to a more active adrenal system in the immune individual.

The pituitary, thyroid and ovaries are closely allied. At the menopause the cessation of ovarian function is apt to be accompanied by a dim-

inution of function in the thyroid and pituitary. More cases of non-operative myxedema occur at this period than at any other. Many disorders of the menopause not relieved by ovarian therapy are promptly benefited by the addition of pituitary and thyroid extract.

The reproductive organs are stimulated by the following extracts: ovarian or testicular, thyroid, suprarenal and posterior pituitary. They are depressed or inhibited by thymus, mammary, anterior pituitary and, probably, placental extract.

It is not definitely known that there is an internal mammary secretion. But administration of the extract in 7 to 10 gr. doses, t. i. d., has a very good effect in menorrhagia, metrorrhagia, fibrosis uteri. It acts particularly well when combined with anterior pituitary extract. Bandler claims some good results and Dalché has used it in these conditions for several years.

Such in general is the work of the adrenal system. On the other hand, the pancreatic secretion probably holds the adrenal system in check. This fact is made use of in the treatment of hyperthyroidism. The feeding of pancreatic extract is very beneficial in the "heart hurry" of this condition.

The main function of the spleno-pancreatic secretion—trypsin—is to continue in the bloodstream the cleavage processes begun in the intestinal canal. Eppinger and Hess hold that the pancreatic hormone—"autonomin"—antagonizes adrenalin. Loewi's is the simplest test for pancreatic insufficiency and consists of dropping into the conjunctival sac a few drops of a 1:1000 solution of adrenalin and watching for dilatation of the pupil.

The doctrine of the correlation of the different internal secretions has been especially emphasized by the Viennese clinicians, Hans, Eppinger, Falta and Rüdinger. Eppinger and Hess have also applied the ideas of Gaskell, Langley and Sherrington as to the opposing functions of the two "autonomics" of the sympathetic system in the elucidation of the complex mechanism of the physiological equilibrium and of visceral neurology. They postulate two opposing diathetic conditions—vagotonus and sympathicotonus, described in 1892 by Solis-Cohen as "vasomotor ataxia."

While much of this is in dispute, it seems probable that the chemical hormones act via the blood upon the central nervous system, while the two opposing autonomics of the sympathetic system control the ductless glands and the visceral organs made up of smooth (involuntary) muscle.

By vagotonia is meant a lasting tonic irritation in the realm of the autonomic system, which maintains its end-organs in a state very closely resembling that produced by electrical stimulation. In vagotonic cases are found enteroptosis, neurasthenia, hysteria, high-arched palates, flat foot and syndactylia. It occurs most commonly in youth. It improves with age and may disappear—and, later, may reappear. According to Eppinger and Hess, patients may alternate between the vagotonic and sympathicotonic states and on this theory they discuss Basedow's disease.

The vagotonic system consists of the oculomotor, glossopharyngeal and vagus. In function it balances the sympathetic system. Vagotonia—or excessive peripheral sensitization—is definitely associated with the disturbance of some endocrine gland or glands, especially the thymus and thyroid.

Briefly, the symptoms of vagotonia are: subjective palpitation, sweating, tremor and general nervousness. Certain drugs exclusively influence the vagotonic system: atropin, physostigmin, muscarin and pilocarpin. An injection of 0.1 gr. pilocarpin produces a marked reaction, i. e., an increase in pulse rate, a rise in blood-pressure, marked perspiration and a great increase in salivary secretion. It is a stimulant to the vagotonic system but a paralysant to the sympathetic. Eppinger and Hess feel that because pancreatic secretion acts in opposition to the adrenal system, the stimulus for the vagotonic system may be found in the pancreas.

There are only two tests for determining the functional activity of the autonomic system:

1. The oculacardiac reflex test of Asher, which consists normally in a change of the heart's rate following pressure on one or both eyeballs.

(Take normal pulse rate; then press on the eyeballs one minute; in hypervagotonics the pulse rate is slowed more than ten beats to the minute; while in sympathicotonics the reflex will be unaffected.)

2. The pilocarpin test.

The analogue to vagotonia is sympathicotonia. This is dependent on normal functioning of the adrenal glands and the entire chromaffin system.

These groups of cells yielding adrenalin maintain the sympathetic end organs in a state of tonic contraction so that but a small sympathetic impulse suffices to produce a large effect.

The stimulus for the sympathetic is adrenalin, while in vagotonia there are only substitutes for the yet undiscovered stimulant. Sympathicotonia is dominated by adrenalin production; arrest this and vagotonia takes the upper hand. Hyperfunction of the sympathetic system results in the state sympathicotonia whose symptoms are mydriasis, tachycardia, vaso-constriction, hyperesthesia to temperature changes, deficiency of perspiration, transitory vertigo, nasal catarrh, diminished gastro-intestinal functions.

Adrenalin acts solely on the sympathetic system and its action is similar to that of electrical stimulation of the sympathetic fibers. The test for sympathicotonia consists of the injection of 1cc. of adrenalin intramuscularly, which causes a marked tremor, nervousness, increase of blood-pressure and blood sugar. Such a reaction stamps the patient definitely as a sympathicotonic and the administration of adrenalin will do harm usually.

Psychotherapy is of value in the early stages of treatment to divert attention from the organ complained of, and pilocarpin 0.1 gr. t. i. d. is given to increase gastric or pancreatic secretion; or physostigmin gr. 0.01 to 0.02 t. i. d. for intestinal atony.

Recognition of the states vagotonia and sympathicotonia clarifies many a difficult case. Jaunuschke likens these two opposing diathetic conditions "to tuning keys, by means of which we can operate the complicated stringed instrument of the body, and voluntarily make one string tighter to increase its vibrations or another looser to damper its function."

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REFERENCES

Blumgarten, A. S.: Vogotonia and Sympathicotonia as Aids in Diagnosis and Treatment of Endocrine Conditions. Medical Clinics of North America, Vol. 3, No. 2, p. 473.
Bandler, S. W.: Sterility in Women with Especial Reference to Endocrine Treatment of the Same. Med. Clin. of North America, Vol. 2, No. 4, p. 921.
Christian, Henry A.: Defects in Membranous Bones; Exophthalmos and Diabetes Insipidus; An Unusual Syndrome of Dyspituitism. Med. Clin. of N. A., Vol. 3, No. 4, p. 849.
Timme, Walter: A New Pluriglandular Complexitory Syndrome. Med. Clin. of N. A., Vol. 2, No. 4, p. 957.
Osborne, Oliver T.: Ovary: Corpus Leuteum. New York Med. Jour., Sept., 1918, pp. 401 and 447.
Berkeley, W. N.: The Treatment of Paralysis Agitans with Parathyroid Gland. New York Med. Record, July 15, 1916.
Sajous, Charles E. deM.: Internal Secretions and the Principles of Medicine. 1911.
Cushing, Harvey W.: The Pituitary and Its Disorders. 1912.
Tierney, John L.: Diagnosis of Disorders of the Hypophysis.

FOCAL INFECTION IN THE HEAD AND ITS RELATION TO SYSTEMIC DISEASE*

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The subject of focal infection is much older than modern medicine. As far back as 1789, Eyerlen of Christiana, in his "Materia Rheumatica ad Tonsillitis," associated tonsillitis with rheumatism, but it remained for Poynton and Paine of England in 1900 to prove that acute rheumatic fever is caused by the streptococcus rheumaticus, and that the primary focus of infection is usually in the tonsils. Dr. Benjamin Rush, in 1801, noted the clinical relationship between dental focal infection and arthritis. He recommended the extraction of an abscessed tooth in a case of arthritis of the hip, which resulted in an immediate cure. In 1875, Dr. John W. Riggs, a dentist of Hartford, Conn., called attention to pyorrhea alveolaris as a cause of systemic disease. In 1909, Billings and Rosenow[1] made epoch-making contributions to the subject of focal infections, based on extensive clinical, bacteriological and pathological studies, which have placed the subject on a permanent scientific foundation.

I. THE INFECTIOUS FOCI

While about 75 per cent. of these foci are located in some part of the head, as the teeth, tonsils, adenoids, accessory nasal sinuses, middle ears and mastoids, we must not forget the other infecting areas of the body, namely, the genito-urinary tract, the lower respiratory and the gastro-intestinal tracts. The incidence of focal infection about the head is high, but the incidence of metastatic infectious disease is low. Statistics vary considerably as to the relative frequency with which foci are found, both in individuals apparently not suffering from any metastatic infection and in individuals suffering from metastatic infection.

Kreuscher[2], in 1916, in a review of 900 cases of metastatic arthritis, found the tonsils diseased in 25%, the teeth in 18%, the sinuses in 17%, and in a more recent series of fifty-two cases, he found the sinuses diseased in 26%, the teeth in 24% and the tonsils in 21½%, Neisserian,

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11½%, seminal vesicles and bladder, 6½%, lungs and bronchi, 6½%, scarlet fever, 2%, and localized skin infections, such as boils and carbuncles, 2%. The percentage of the cephalic group, i. e., sinuses, teeth and tonsils, amounts to 71% of the total.

Moorehead[3], in 1916, in Billings' clinic, found chronic alveolar abscess in 89% and pyorrhea in 76% of 498 cases of chronic arthritis; in 150 cases of systemic disease, 69% showed alveolar abscess. Seventy cases, excluding arthritis and including myositis, neuritis, goiter, asthma, nephritis, etc., showed chronic alveolar abscess in 74% and pyorrhea in 49%.

Gibbes[4], in a study of 500 private patients, found oral sepsis (pyorrhea and apical infections) in 25%, of which 25% had arthritis; or, putting it in another way, arthritis was absent in 75% of the cases of oral sepsis.

A. D. Black[5], in a tabulation of 600 adults, found that 78% had definite areas of bone destruction about the teeth as shown by Roengenograms. Seventy-two per cent. reported as having no apparent systemic disorders, 14% complained of occasional muscular or joint symptoms and 13% reported well-defined cases of arthritis, nephritis, etc. About two-thirds of the latter cases occurred in persons over 40 years. From this data we may conclude that while 72% were subjectively in good health, 78% showed apparent dental focal infection, or in other words, while the majority enjoyed good health, they also harbored dental foci of infection.

Irons and Brown[6] found dental infections (apical infection and alveolar abscess, but pyorrhea was not included) in 18 and diseased tonsils in 16 of 100 cases of iritis. Lange found 65% of 215 eye infections due to pyorrhea.

Steinbugler[7] states that 50% of all adults have pyorrhea. Ulrich found that apical abscesses were present in 83% of dead teeth, and in over 68% of artificially devitalized teeth. Latent dental infections are often found in persons not suffering from metastatic disease. Out of 81 patients at the Robert Bright Hospital, Boston, Thoma[8] found 90% that had latent dental abscess. H. G. Beck[9] reports on the relationship of chronic focal disease and hyperthyroidism as follows: 56 out of 100 cases showed head focal infection, of which dental pyorrhea alveolaris and alveolar abscess constituted 57%, chronic infected tonsils 40%, and sinusitis 5%.

Irons[10] in 329 cases variously grouped, x-rayed 124, and 44% of these were found to have alveolar abscess. In the arthritis group, alveolar abscesses were present in 76%, in the nephritis-cardio-vascular group in 47%, and in the respiratory and gastro-intestinal group, 23%. The tonsils were involved in 45% of the arthritis group, in 24% of the nephritis-cardio-vascular group, and 19% in the remainder. Chronic sinus or genito-urinary infection were present in 21% of the arthritis group, in 13% of the nephritis-cardio-vascular group, and in 11% of the other diseases.

II. BACTERIOLOGY

Billings[1] states infected tonsils and adenoids may yield cultures of streptococcus mucosus, streptocuccus viridans, streptococcus hemolyticus, micrococcus catarrhalis, pneumococci, B. influenza, B. diphtheria, B. pseudo-diphtheria. The crypts of the tonsils are an excellent breeding place for the streptococcus, for they seem to thrive better here than any other organism. Crypt cultures are more often positive than surface cultures. Cultures taken from different parts of the nose, mouth and throat show more streptococci in the tonsils. Out of 25 cases of acute follicular tonsillitis, only one failed to show a culture of hemolytic streptococci. Of 100 pairs of excised tonsils which were removed on clinical grounds, on account of size, presence of discharge from crypts, cervical glandular enlargement and possibility of focal infection, 75% showed hemolytic streptococci (Nichols and Bryan).[11]

D. J. Davis[12] in series of sixty-one pairs of tonsils extirpated mostly from children, for various reasons, chiefly hypertrophy, but many of which appeared quite normal, found hemolytic streptococci in 90%, and in a series of 24 normal persons, found cultures from the throat and pharynx positive for hemolytic streptococci in 58%; in 19 persons without tonsils, cultures were positive in 15%, and in these persons were found either bad teeth or stumps of tonsils. Pilot, in 100 cases of ordinary hypertrophy without acute inflammation, after extirpation found the hemolytic streptococci in the tonsil crypts in 97% of the tonsils. Davis[12] points out that inasmuch as the crypts of the tonsils are the main habitat for hemolytic streptococci, perhaps they are as normal to the tonsil crypts as the streptococcus viridans is to the buccal mucosa, the staphylococcus albus to the skin or colon bacillus to the

intestine. The hemolytic streptococci are much more virulent than the streptococcus viridans.

Rosenow found the streptococcus viridans in tonsils in a large percentage of the endocarditis cases. Hemolytic streptococci are often found in cultures from sinus infections. Streptococci are found in 30% of the cases of acute otitis media after paracentesis (Voight).[13]

Hartsell[14] has shown that the streptococcus viridans is present in chronic dental abscess and pyorrhea, and is usually of low virulence, but may produce lesions of the heart, kidneys and joints.

Lescohier[15] in seventy cases of pyorrhea showed that the streptococci takes the leading role.

The streptococcus group causes more primary infections of the upper respiratory and gastro-intestinal tracts than all the other organisms combined, and is principally concerned in the production of secondary foci of infection. They seem to have a selective affinity for the lymphoid tissue and the mucous membrane of the nose and throat.

III. DIAGNOSIS

a. Dental Infection. Dental infection is the most frequent focal cause of systemic infection (25-90%). The presence of dental focal infection is easier to diagnose than any other on account of the great aid given by x-ray. There are two general sources of infection about the teeth, viz.: blind abscess (apical abscesses or alveolar abscesses) and pyorrhea alveolaris. Pyorrhea is usually self-evident. We should look upon as greatly suspicious all crowned and bridged teeth, devitalized and filled teeth, until proven otherwise by x-ray films. A comprehensive dental report with x-ray findings should be made a part of each record whenever there is suspicion that the teeth may be the source of infection.

b. Tonsillar Infection. After the teeth, the tonsils come next in frequency as the focal cause of systemic infection (25-50%). Tonsils have a marked tendency to retain infectious matter. This is noted clinically in diphtheria and streptococcus carriers, and in recurrent acute tonsillitis and peritonsillitis. This may be on account of the anatomical structure of the tonsils with its folds and crevices. Its crypts may be looked upon as culture tubes, which almost always contain streptococci. The cheesy masses often found in the tonsillar crypts, in the supra tonsillar fossa, and between the tonsil and the anterior and posterior pillars, are composed of desquamated epithelium, living and dead lencocytes, bacteria and food particles. By making firm pressure with a blunt instrument on the anterior pillar, thus everting the tonsil, the cheesy concretions or puriform fluid will be forced out of the crypts. The presence of these cheesy masses is not always significant of the retention of infected material for, according to Davis,[12] "Excepting in acute infections of the tonsils, the cheesy or purulent-like material that exudes from the tonsillar crypts on pressure is less likely to contain hemolytic streptococci than the empty crypts, and much of the fluid material expressed from the tonsils, commonly called pus, is not purulent when examined microscopically." Partial occlusion of these crypts occurs from repeated attacks of tonsillitis or from scar tissue resulting from cauterization or incomplete tonsillectomy. Stumps of tonsils, the remnants of previous operations, are the seat of retained infection on account of sealing up of the tonsillar crypts by the operation scar imbedding the tonsillar stump in adhesions. Crowe, Walker and Rotholz[16] report eight cases of infectious arthritis after incomplete tonsillectomy, and Loeb[17] reports five such cases. Regarding the size of the tonsil, the small submerged tonsil will often retain more infection than the larger pedunculated type. A submerged tonsil is a tonsil that is more or less covered by its pillars and having only a small part of its surface exposed to view, and consequently this favors the retention of cheesy deposits from the tonsillar crypts. On account of the poor drainage of its crypts, the submerged tonsil and the tonsil with a large upper lobe hidden in the supratonsillar fossa is the type of tonsil most frequently associated with focal infection. As a general law, it may be stated that the tonsil becomes diseased and is therefore dangerous proportionately as its drainage is obstructed. A large pedunculated tonsil, not associated with the history of tonsillitis, and showing no evidence of cryptic retention and not causing any mechanical disturbance, is harmless, because drainage is best in this type of tonsil. Persistent tonsillar hypertrophy in adults may of itself be an evidence of chronic infection. Previous attacks of tonsillitis or peritonsillitis

signify a diseased tonsil. Dowd found the tonsil lymph gland situated at the angle of the jaw was enlarged in 86%, and most of these patients gave a history of tonsillitis or pharyngitis. A chronically inflamed tonsil, often associated with redness of the throat, and particularly of the anterior pillar, regardless of its size, is invariably a diseased tonsil, and especially so when found in a non-smoker. Sometimes diseased tonsils are apparently normal in appearance, the patient denying any previous tonsil disease, and yet the tonsils on removal will disclose an abscess. To positively exclude infection of the tonsils by inspection alone is impossible, as the most innocent looking tonsil may be the most potent from the standpoint of focal infection. The presence of a chronically diseased tonsil does not necessarily imply the absorption of infection from this source, provided that its drainage is not seriously interfered with, but of greater significance is the fact that this type of tonsil may sooner or later flare up with an acute virulent type of infection.

c. Other Lymphoid Infections in the Nose and Throat Are:

1. Adenoids. On account of better drainage of its crypts, it is less likely to contain a focus of infection than the tonsils. The adenoids, especially in the fossa of Rosenmuller, may be secondarily infected from purulent secretion from the sphenoid and posterior ethmoid sinuses and the Eustachian tube. Infection of the nasopharynx is often evidenced by enlargement of the post-cervical glands. An acute adenoiditis due to the streptococcus may cause acute hemorrhagic glomerulo-nephritis, especially in children, and is frequently associated with acute tonsillitis.

A rare disease of the adenoids known as Thornwaldt's disease, in which there is a chronic suppuration in a canal in the recessus medius or groove between the lateral halves of the adenoids, may be the source of chronic focal infection. I recently operated upon a case of Thornwaldt's disease in which chorea had been present for eighteen months during this time the chorea had been under efficient medical treatment but without any improvement. Three days after adenoidectomy it was noted that the chorea became greatly lessened in severity and progressively improved until after the seventh day when all involuntary movements and twichings completely disappeared and have not recurred to date (four months later). The rapidity of the improvement and the apparent cure after removal of the focal infection would seem to justify the conclusion that the focal infection in this case had a direct etiological relationship to the chorea.

2. Lingual Tonsils. The crypts of lingual tonsils drain well, because they are wide, short and straight, and consequently are rarely the cause of secondary infection. Sluder,[18] however, recently reported five such cases, and stated that it is not so rare as is generally supposed.

3. The lymphoid masses on the lateral pharyngeal wall, situated behind the posterior pillars, and the lymphoid follicles on the posterior pharyngeal wall, are not infrequently involved in an acute follicular inflammation, with or without associated tonsillar involvment. Apparently the lympathic tissue of Waldeyer's ring is an excellent culture medium for the streptococcus. Davis[12] states that the lymphoid tissue of the throat has a protective mechanism against bacterial absorption, but that this mechanism breaks down in hemolytic streptococcus infections.

d. Ear Infections: The acute and chronic suppurative ear diseases, viz., otitis media and mastoiditis, while not uncommon, are rarely the cause of focal infections. This is because drainage is not sufficiently interfered with to produce absorption of the infection. Palen[19] believes the percentage of systemic infections from aural disease is relatively as large as that from the tonsils, sinuses and teeth as the actual increase in the percentage of systemic infections from the tonsils, sinuses and teeth is due to the greater frequency of foci in these parts as compared with the aural foci.

e. Ocular and Extra-Ocular Infections. While some of the suppurative disease of the eye and its adnexa could be considered as possible foci of infection, viz.: panophthalmitis, orbital cellulitis and abscess, acute and chronic dacryo-cystitis, this seldom, if ever, occurs.

f. Accessory Nasal Sinus Infections. After the teeth and the tonsils, sinus infections come next in frequency (5-25%), in cephalic focal infection. Brown and Irons[6] state that in spite of able assistance and the recent advances in roentgenographic and clinical diagnosis of sinus disease, they have experienced more difficulty in the diagnosis of the presence or absence of infected sinuses than that of any other region of

the body. Suspect all coryzas that become chronic, all chronic muco-purulent nasal discharges, and all head colds that complain of tenderness over the frontal or maxillary sinuses, especially when associated with morning headaches, as indicating sinus trouble. Trans-illumination is of value in the maxillary and frontal sinuses only. The maxillary, frontal and sphenoid sinuses can be washed out via the natural openings to determine the presence or absence of pus, and if this is anatomically impossible, resort can be had to diagnostic puncture. Roentgenograms are a decided aid in the diagnosis of sinusitis, and no suspect sinus case should be considered thoroughly examined until a good roentgenogram has been obtained. The most frequently involved sinus is the antrum of Highmore, and this is probably more often involved than all the others combined. In antrum cases, it is well to examine the upper bicuspids and the first and second molars, as about 25% of these cases are of dental origin; an infected root penetrates and infects the antrum. After the antrum, in point of frequency, the ethmoid, frontal and sphenoid sinuses are involved. Haike, in a radiographic study of the accessory nasal sinuses in children, finds the antrum most often diseased, after which comes the ethmoids. In L. W. Dean's[20] investigation of sinusitis in children, he studied 234 children, thirteen years or younger, suffering from adenoids, and found that in 34 cases, or about 15%, a chronic empyema of one or more sinuses was found. The symptoms were sneezing, recurrent stoppage of the nose, frequent colds, nasal discharge and headaches. He states, "In cases of severe systemic infection and inability to localize the focus of infection, an exploratory operation of the sinuses, especially the ethmoid, is indicated unless the complete absence of discharge in the nose, perfectly normal turbinates and mucous membrane, contra-indicates sinusitis."

g. Latent Focal Infection. The diagnosis in this class of cases is often very difficult and in many cases can be only surmised, on account of absent signs and symptoms. Frequently the accessory nasal sinuses and teeth are causing the trouble. In adults past middle age, suspect the teeth and sinuses, and in children and young adults the tonsils and adenoids.

h. Co-incident, Combined or Multiple Focal Infection. These are frequently found in the same individual, especially involving the tonsils, teeth and accessory nasal sinuses. Infectious matter from the teeth or sinuses will infect the tonsils. It is often difficult or impossible to tell which is the active source of infection, but fortunately this can be practically disregarded, as in the treatment all the areas of infection should be cleaned up and eliminated. Of more importance to the patient is the early recognition of the presence of infection in any part of the body. It is also possible for the secondary foci to act in the same manner as the primary focus, that is, the joints of infectious arthritis, infected lymphatic glands, etc., may cause other metastatic infectious disease, and in this manner a vicious circle may be established. We must not overlook the frequent association of focal infection with syphilis and tuberculosis, so that in all suspicious cases a thorough clinical, bacteriological and serological examination should be made. In some of these cases it will be very difficult to correctly appraise the relative importance of the various causative factors. Indeed, the differential diagnosis between incipient pulmonary tuberculosis without definite lung finding and focal infection is sometimes very difficult or impossible, as the symptoms due to the absorption of the products of bacterial infection are identical, namely, the malaise, anemia, general weakness and loss of vitality, often associated with a slight rise in temperature. It is a well known clinical fact that one infection may stimulate another into activity, e. g., the presence of an active focal infection may cause an unsuspected or inactive tuberculous lesion to become active. Miller and Lusk have shown that this phenomenon occurs quite frequently.

IV. TREATMENT

a. Prophylactic. In general it may be stated that the incidence of metastatic infectious disease depends upon the incidence of focal infection. It therefore follows that if focal infection can be reduced in frequency, the resultant systemic diseases ought to be reduced proportionately. Statistics are now getting into the literature (Lambert),[21] which prove the correctness of the above conclusion. Much has already been accomplished in this field of preventive medicine but there is much more to be done. The public is getting to understand the necessity of this prophylactic work through the continuous and

united efforts of the dental and medical professions, the health boards, the schools and the press.

b. Active. This consists in the elimination of the foci of infection by operative removal (tonsils, teeth, mastoid), and where this is not possible, by providing adequate drainage (sinuses, middle ear) together with general measures to increase the resistance of the patient (tonics, dietetics and hygiene). It is superfluous to remark that the removal of focal infection cannot remove permanent pathological changes in organs and tissues resulting from metastatic infection. Tonsillectomy during the acute stage of chorea, acute inflammatory rheumatism or acute endocarditis, is contra indicated. The removal of tonsils during an attack of acute inflammatory rheumatism, with or without cardiac complication, does not modify its clinical course, because this disease is the result of a bacteremia, which is usually secondary to an acute tonsillitis. The time for the removal of tonsils in these cases is after convalescence, when the patient has regained strength and vigor. The recurrence in some cases of acute inflammatory rheumatism after removal of tonsils and adenoids may be explained on the supposition that the streptococci gain entrance to the systemic circulation via another route, that is, sinuses, teeth, pharynx, etc. In acute glomerulo-nephritis with hematuria, the usual cause of which is an acute streptococcus tonsillitis, Billings states that the tonsils should be removed early. In the Johns Hopkins[16] Hospital series, 70% of the infectious nephritis showed normal urine in from eight months to three years after removal of tonsils. Rheumatioid arthritis, if well advanced, according to the experience at Johns Hopkins, is not improved by tonsillectomy if there is no other indication for operation, and tonsillectomy has not proven a satisfactory phophylactic or therapeutic measure in chorea.

In chronic infectious forms of arthritis, the focal causes should be removed as early as possible. In the Johns Hopkins Hospital cases approximately 80% were cured, 10% improved and 10% not improved after removal of tonsils. Lyman,[22] in a questionnaire submitted to laryngologists and internists requesting information regarding the results obtained by tonsillectomy in cases of arthritic, cardiac, renal and other systemic diseases, included 894 cases, of which cures resulted in 63% of the arthritic cases and in 68% of the renal cases, and considerable improvement in 30% of the arthritic, and in 16% of the renal cases, and no improvement in 16% of the renal and in 21% of the cardiovascular cases. With regard to the thyroid gland and focal infection, Billings emphasizes the frequency with which hyperthyroidism occurs in young women with focal infections, in the form of alveolar abscess, tonsillitis and sinusitis, while Bloodgood states that in 50% of the toxic goiter cases he has found either infected tonsils or an infected nasal cavity. If it can be definitely proven that goiter and hyperthyroidism are due to an infection, then the relationship between the thyroid gland and focal infection is very intimate, and *a priori* the removal of the focal infection ought to result in improvement or cure. Clinical experience, however, teaches us not to rely too much upon these measures as curative. This in itself raises considerable doubt as to the focal infection being the specific cause rather than a coincident infection, which, however, merits early and urgent eradication. The intimate relationship between the faucial tonsils and the cervical lymphatic glands in tuberculous glands of the neck is clinically very important, so that it is now universally recognized that removal of the diseased glands is not sufficient, without the removal of the source of infection, which may be primary in the tonsil or through infection via the tonsils. The presence of a cervical adenitis of any kind demands a thorough investigation be made of the source of the trouble, frequently in the tonsils and teeth. Where there has been no history of acute tonsillitis, and there is no apparent evidence of chronic tonsillar infection, but there is present a serious systemic infection, tonsillectomy is to be considered only when there is no other demonstrable focus of infection. The general rule, however, holds good that where the tonsils are the foci of infection, causing systemic disease, there is nearly always a history of acute tonsillitis or evidences of chronic tonsillar infection. Daland[23] states that if, after careful and minute examination of all regions of the body for focal infection, none is found, remove the tonsils in young adults for arthritis. In the chronic infectious arthritides, where the joints have been sensitized by the primary focal infection, it takes but a slight recurrence of the infection to cause a recurrence of the arthritis, and it is therefore essential for

complete therapeutic success than any associated infection should be eliminated. As chronic infection of the tonsils may be secondary to oral sepsis, sinus disease and chronic running ear, hence these should be cleaned up before removing the tonsils. Our attitude on the surgical removal of focal infection may be summed up in the observation of Moorhead,[3] which applies to the tonsils as well as to the teeth, when he says, "No doubt teeth are being extracted which do not bear causal relationship to the general infection, but it is the lesser of two evils, and whether the patient is well or ill, it is never justifiable to allow any infection to remain anywhere in the body, which may be removed." The treatment of sinusitis comprehends the establishment of adequate drainage and ventilation of the sinus in question by non-operative methods if possible (topical application, irrigation and suction), and if this is unsuccessful, followed by operative methods.

The improvement noticed following drainage is not so apparent as where the focus of infection can be immediately and completely eradicated (abscessed teeth or diseased tonsils). A chronic suppurative otitis media, even with the best of treatment and the most radical operation, will not always be permanently cured. Dental foci should be thoroughly eradicated. Teeth involved either with pyorrhea or chronic alveolar abscess are not in the large percentage of cases successfully treated and, therefore, the safest procedure is extraction. I wish also to emphasize the importance of the eradication of focal infection in the syphilitic and tuberculous. It is really surprising what good therapeutic results one obtains in the vigorous treatment of these cases from every possible etiologic angle. All the causative factors in the case must be thoroughly investigated and the necessary treatment instituted to obtain the quickest and best results. If, after cleaning up the apparent foci of infection, no improvement results, it means that there is still present some undiscovered focus of infection somewhere in the body, or that the etiological diagnosis of focal infection is not substantiated. While it is necessary to eliminate all possible foci of infection anywhere in the body before it can be positively asserted that focal infection is not an etiological factor, it does not necessarily follow that because a focus of infection is found, it must have a direct causal relationship to the disease which is under investigation, unless the focus has been removed and improvement or cure result. In this connection I may state that it is a well known clinical fact that many cases recover without the removal of the apparent source of focal infection, but this occurs, however, only after prolonged treatment, and these cases are especially prone to relapse and recur, thereby jeopardizing the health and future welfare of the patient. It cannot be too strongly emphasized that there is never any justification for permitting the continued presence of any recognizable focus of infection, which may immediately or subsequently have a direct etiologic relationship to some serious disease and thereby compromise the individual's health or even life itself.

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BIBLIOGRAPHY

1. Billings, Frank: Focal Infection, Lane Medical Lectures.

2. Kreuscher, P. H.: A further study of the etiology, pathology and treatment of metastatic joint infections. Bull. Chi. Med. Soc., Feb. 2, 1918.

3. Moorehead, F. B.: The prevalence of chronic mouth infections and their management. J. A. M. A., Sept. 16, 1916.

4. Gibbes, J. H.: Oral sepsis and arthritis. Southern M. J., July, 1918.

5. Black, A. D.: Roentgenographic studies of tissues involved in chronic mouth infections. J. A. M. A., Oct. 19, 1918, and Aug. 25, 1917.

6. Irons, E. E., and Brown, E. V. L.: Etiology of Iritis. J. A. M. A., June 10, 1916.

7. Steinbugler, W. F. C.: Dental infection in eye disease. Arch. Oph., March, 1918.

8. Thoma, K. H.: Relation of teeth and jaws to medicine. Med. Clin., No. Am., January, 1918.

9. Beck, H. G.: Relation of chronic infection to thyroid deficiency. Southern M. J., July, 1918.

10. Irons, E. E.: Dental infection and systemic disease. J. A. M. A., Sept. 16, 1916.

11. Nichols and Bryan: The tonsils as foci of infection in streptococcus hemolyticus carriers. J. A. M. A., Nov. 16, 1918.

12. Davis, D. J.: Hemolytic streptococci. J. A. M. A., Feb. 1, 1919. Tonsils and infections, J. A. M. A., Jan. 31, 1920.

13. Voight, W. C. R.: Bacteriology of focal infections. J. Oph., Otol. and Laryn., Feb., 1917.

14. Hartzell, T. B.: The mouth as a factor in the pathogenesis of heart, kidney and joint inflammations. J. Lancet, 1916, 36:125.

15. Lescohier, A. W.: Pyorrhea. J. A. M. A., Feb. 10, 1917.

16. Crowe, Walker and Rothholz: The relation of tonsillar and nasopharyngeal infections to general systemic disorders. Bull. Johns Hopkins Hosp., Jan., 1917.

17. Loeb, H. W.: The susceptibility to infection manifested by the remains of incomplete removal of tonsils. Annals Oph., Rhin. and Laryn., March, 1918.

18. Sluder, G.: Some clinical observations on the lingual tonsils concerning focal infections. Am. J. Med. Soc., August, 1918.

19. Palen, G. J.: Focal infection in aural disease. J. Oph., Otol. and Laryn., 23, 1917.

20. Dean, L. W.: Infections of the paranasal sinuses in infants and young children, with especial reference to adenoids and chronic tonsillitis as factors. Annals Otol., Rhin. and Laryn., 534, 1918.

21. Lambert, A.: The incidence of acute rheumatic fever at Bellevue Hospital. J. A. M. A., April 10, 1920.

22. Lyman, D. W.: Results obtained by tonsillectomy in the treatment of systemic disease. Laryngoscope, February, 1918.

23. Daland, J.: Diagnosis of focal infection. Penn. M. J., January, 1918.

PULMONARY INFECTION BY SPOROTHRIX OF SCHENK*

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The Sporothrix of Schenk was first recognized by Schenk, Hektoen and Perkins.

W. W. Hamburger of Chicago reported in the *Journal American Medical Association* in 1912 a summary of over 200 cases which have occurred in all parts of the world, especially in the middle western portions of the United States.

He reports that there is evidence that it is not merely a local skin affection, but may, like other granulomata, become a generalized systemic infection. The organism of Schenk has been found in muscles, joints, bones, kidneys, lungs and the blood by cultures. The disease is most conspicuous in agricultural districts, among farmers, also fruit dealers or handlers and berry pickers, and is the cause of many unhealed chronic ulcerative processes to which various names have been applied.

In the *International Clinics* of 1912, Hamburger gives Beurman's classification as follows:

1. Localized sporotrichosis with sporotrichotic chancre and lymphadenitis with ascending lymphangitis.
2. Disseminated gummatous sporotrichosis; multiple subcutaneous nodules without ulceration, at first hard, painless masses, later cold abscesses.
3. Disseminated ulcerative sporotrichosis; multiple polymorphic ulcerations.
4. Extracutaneous sporotrichosis; localized in bones, mucous membranes, muscles, joints, kidneys or lungs.

The clinical findings show an insidious onset and slow progress following the course of lymphatics small hard subcutaneous or submucous nodules with only slight pain, if any, and fever.

One is, therefore, liable to mistake the disease for tuberculosis or even syphilis.

Ralph Webster claims that attempts to obtain the sporothrix either in sections of the affected tissue or in smears from the broken down nodules, have usually failed. Cultural methods are, therefore, essential, and the organism grows best in 2 per cent. glucose agar. The organism readily stains with ordinary dyes and is gram-positive.

Without going into the details of the cultural media growth and appearance of the branching septate mycelium, I will draw your attention to the microscope which I have brought along so that you may see the characteristic pear-shaped spores which are 4 to 5 m. in length by 2 to 3 m. broad.

As a resume I will quote again from Hamburger's report in the *Journal A. M. A.*

"It would seem highly probable, therefore, that sporotrichosis is a widespread prevalent disease, particularly in the country and farming districts, and that many unhealed chronic ulcerative processes now passing under the caption tuberculosis, syphilis, glanders, blastomycosis, actinomycosis, etc., are in fact unrecognized sporotrichosis. In the belief that with greater familiarity with the clinical picture will come earlier and more general recognition of the disease, I present this paper, for it is my conviction that the history of the development of sporotrichosis will parallel that of actinomycosis and blastomycosis as soon as the attention of the profession, particularly those practicing in the farming districts, is directed to the infection."

As to treatment, the only one which so far has proved successful is K. I. in increasing doses up to 6 gm. per day or more—and it should be kept up at least a month after apparent recovery.

Two cases which I wish to report have been a puzzle to a few of us and it is only after four months of close watching that I was fortunate enough to discover in the sputum analysis a sporotrichosis granule bearing many spores. I do not claim that I recognized the peculiar pear-shaped organism at the time for I had never seen it previously, but I felt quite certain that at last I had found something pathognomonic, and I therefore sent immediately the contents to a reliable Chicago laboratory, which reported a very positive case of sporotrichosis and also remarked that those organisms were very numerous.

In examining the patient's throat, I had been impressed by a yellowish, firm, submucous granuloma, the size of a split pea, and after endeavoring to puncture it and evacuate what I thought might be pus, I found that it was rather firm in texture, and referred the case to Dr. Clifford Smith, who reported that he also had found the same little growth at the base of the tonsil in the patient's sister's throat; he afterwards removed both nodules similar in appearance in each of the two patients, but I have been

*Read at the meeting of De Kalb County Medical Society, October 27, 1920.

unable to recover either the mycelia or the sporothrix proper in the ablated sections. The microscope revealed only lymphoid cells and practically an aseptic focus—which verifies Ralph Webster's assertion of the difficulty of recovering the organism in the focus itself.

Although the patients have been thought tubercular for the last five years, I was somewhat reluctant to base such diagnosis on the clinical findings. I will not discuss my private opinion on the outlook and somewhat characteristic findings of the chronic tubercular, as it would take me out of my subject, but I will say that the characteristic properties of the urine for tuberculosis as well as the blood pressure picture did not impress me as a correct diagnosis for tuberculosis in either case. The systolic pressures in both cases were 130 and 135 respectively, mean pressure above 100 in both; pulse pressure above 50 and energy index above 18,000, also in both.

Those are features I repeat, which I do not find characteristic in tuberculosis, although both patients have lost weight, feel exhausted, have evening temperature, cough, etc. The Von Pirquet and tubercular bacilli were never found positive in either case, and I therefore feel safe in reporting them as two cases of pulmonary sporotrichosis.

A CASE OF "ARGYRIA"*

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DE KALB, ILLINOIS

Patient, U. G. K., aged 55 years. Mother was Pennsylvania Dutch and father was English and Irish.

Occupation, traveling salesman.

History: Catarrh of nose since 1910 which made him weak, anemic and affected his stomach. Consulted various doctors to get relief, undergoing operation for appendicitis, and in 1916 Dr. Clifton of Watseka, Ill., gave him silver nitrate in quarter grain doses to be taken three times daily. Treatment was continued for three months when it was noted that the skin of the face and hands—the exposed surfaces—was assuming a darker color. January 16, 1919, referred to me by Dr. Blagden of Sycamore, Ill., on account of the persistent so-called "catarrh."

Findings: A muco-purulent discharge from middle meatus of left nostril. Bones of face so heavy that all sinuses are equally dark to transillumination. X-ray findings are also negative. Puncture of left maxillary sinus with trocar and cannula, followed by irrigation, gave over an ounce of thick creamy pus, which smelled like a rotten egg. January 27, 1919, left inferior turbinate trimmed and large hole made into left maxillary sinus by means of a Tilley burr.

April 1, 1919, patient feels much better and all odor from left nostril is gone.

This case is presented to show (fortunately) a rare pigmentation of the exposed surfaces of the skin and also as a warning that silver nitrat should be given internally very cautiously.

His trouble in the beginning was undoubtedl a focal infection in the maxillary sinus, and thi is what should have been treated.

*Read before the De Kalb County Medical Society, October 27, 1920.

THE SIGNIFICANCE OF CARDIAC MURMURS.*

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In the past much stress has been placed upon the importance of cardiac murmurs. At the present time more attention is being paid to other factors which determine cardiac compensation or insufficiency. However, murmurs cannot be entirely neglected, for their presence or absence form an important element in cardiac diagnosis and prognosis.

The subject matter of this paper is based upon conclusions derived from observations made in the cardio-vascular section of the medical department of the army. The physical examination of the men in the army afforded an opportunity to examine the hearts of a large number of young adults. The relative frequency of functional murmurs in otherwise normal hearts was demonstrated. Conclusions were reached regarding the importance of the various murmurs heard in young adults. The importance of certain features of cardiac diagnosis was emphasized by this work.

The subject matter is best considered under five different topics: First, the method of examination; second, a consideration of functional murmurs; third, the importance of diastolic

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murmurs; fourth, presystolic murmurs, and, fifth, cardiac irregularities.

Risking the criticism of discussing too elementary a subject, I am going to consider two practical points about the method of conducting the physical examination which, although very simple, were of great value in the army work. The first is the type of stethoscope used and the method of using it, and second, the method of percussion.

The ordinary small belled Ford stethoscope was found to be the most practical. In examination at the apex this type of stethoscope is indispensable. The value of this stethoscope lies in the fact that the bell of the scope is small, and can be pressed up between the ribs against the intercostal muscles. There is a striking difference between the sounds heard at the apex when the stethoscope is pressed lightly against the skin and those heard when it is pressed up in the interspace. There are vibrations produced by the tissues between the apex of the heart and the stethoscope which cause many abnormal sounds and rumbles. These sounds are entirely overcome by pushing the bell of the scope up against the deeper tissues. This is of special importance when tachycardia is present, as it so frequently is at the time of examination, due to the nervousness of the patient. When the heart is rapid, with the stethoscope resting lightly against the skin, these abnormal sounds at the apex simulate mitral valve disease. This simple point of technique in the proper use of the stethoscope was found to be of great importance in examining recruits, the majority of whom were nervous and frequently had a pulse rate of one hundred and twenty or more. Many a doubtful valvular lesion disappeared with a little more pressure on the stethoscope.

The second point is the method of percussion. The area of cardiac dullness, as determined by percussion, is the best clinical method we have, outside of the x-ray, in determining the size of the heart. Of course, any method of percussing cardiac dullness is not absolutely accurate. This has been proven by comparison with x-ray findings. We cannot, however, x-ray every patient that we examine, and although not absolutely accurate, we must rely upon percussion for this information.

This task is much simplified by the use of the direct method of percussion. This method is used in the following manner: Standing in front of the patient, draw the soft tissues over the precordium up towards the axilla with the left hand. Then, using the middle finger of the right hand as the percussing finger, percuss the chest wall, following down in the fourth, fifth and sixth interspaces, from the axilla toward the heart until the area of cardiac dullness is heard and felt. It is necessary to percuss in the interspace, to avoid the resonant note produced when percussing along the ribs. The change in resistance is easily felt as soon as the heart is reached. The sensation of increased resistance due to a solid organ is very definitely noted, and even more noticeable than the change in resonance. This method of percussion is especially valuable at the base in determining the increase in the size of the aorta or the presence of aneurism.

The presence or absence of cardiac enlargement is of great importance in judging the significance of cardiac murmurs and in estimating the prognosis. The results obtained by this technique are accurate, it is easier than the indirect method and deserves more general use. In large emphysematous chests any method of percussing cardiac dullness may be erroneous and the x-ray should be used to corroborate the findings.

Functional murmurs. Changes in the structure of the heart valves are the usual cause of heart murmurs. There are, however, murmurs heard over the heart which are not associated with any valvular lesion. These are called functional murmurs. The exact cause of functional murmurs is not known. There are various theories as to their origin, but at present their exact etiology is a mystery. They are very common in young adults. Their great frequency in the men examined for army service made their recognition and proper diagnosis of great importance to the Surgeon General. Probably ten per cent. of the men examined in the service had functional heart murmurs, which could easily be mistaken for organic lesions. Functional murmurs are most commonly heard over the base of the heart in the second left interspace, and have the following characteristics: They are systolic in time. Their intensity is variable. Although usually soft, they may be very harsh and are sometimes accompanied by a palpable thrill. If very loud, they may be heard over most of the

precordium and may even be heard at the apex and up in the vessels of the neck. Their intensity is increased by complete expiration, when they are often very harsh. They are louder when the heart is rapid, as after exercise, and softer, or sometimes absent, after rest. They are not associated with any enlargement of the heart.

Functional murmurs at the apex are less common than those at the base. They are short blows, not entirely replacing the first sound, are not transmitted, and are not associated with any cardiac enlargement. Functional murmurs at the apex are very common in rapid hearts, and when due to the rapidity usually disappear after rest. Frequently during the course of acute febrile conditions with increased heart rate, a short systolic murmur is heard at the apex, which disappear with the cessation of the fever. These apical functional murmurs are very variable, heard one day and absent the next.

It is always advisable to inquire into the history as to a recent attack of acute rheumatic fever, chorea, or sore throat, for a beginning lesion of the mitral valve in which the heart has not yet hypertrophied may cause a systolic murmur with no increase in the cardiac dullness. With such a positive history of a recent infection, we should hesitate before diagnosing an apical systolic murmur as functional, even though there is no cardiac enlargement.

The loud systolic functional murmurs at the base may be mistaken for aortic stenosis. If we will remember the principles laid down to Laube regarding the diagnosis of aortic stenosis, the two can be readily distinguished. Leube states that aortic stenosis is accompanied by a palpable thrill, absence of the second aortic sound, loud transmission of the systolic murmur up the vessels of the neck, a characteristic pulse, the so-called pulsus tardus and rotundus, and cardiac enlargement. The murmur is heard best in the aortic area.

The systolic functional murmurs at the apex must be differentiated from the murmur of mitral insufficiency. In mitral insufficiency the heart is always enlarged, the murmur partially or completely replaces the first sound, is well transmitted to the axilla, and often heard in the back. The second pulmonic sound is accentuated.

Great mental distress is caused by diagnosing these functional murmurs as organic, and burdening the patient with the idea that he is suffering from incurable heart disease.

Lewis, and his associates, carefully studied the subject of systolic murmurs in their work in the British Army. They concluded that systolic murmurs not associated with definite cardiac enlargement were of little practical importance. This same conclusion was reached in our army and unless the men had definite enlargement or showed signs of myocardial weakness, they were accepted for full duty, regardless of the systolic murmurs. The same principle applies to our civil practice. In fact, it is more important, for we all know how often patients are made invalids by worrying over the thought that they have serious heart trouble. Frequently is is one of these systolic murmurs without cardiac enlargement, and it is our duty to protect the patient by assuring him of the insignificance of these murmurs. Especially is this true of systolic murmurs in the pulmonary area.

Diastolic murmurs. It is impossible to lay too much stress upon the importance of diastolic murmurs. Their presence always means organic heart disease. I say always, for ninety-eight per cent. of diastolic murmurs are organic. Rarely a cardio-respiratory murmur may be diastolic, but these are variable, present one day and absent the next. Diastolic murmurs are constant and do not change from day to day. It is the diastolic murmur which requires emphasis as to its import. It is the murmur which justifies impressing the patient with the fact that he has heart trouble. Because of their importance as evidence of grave heart disease, and because they are frequently faint and difficult to detect, great care was taken in the army work not to overlook diastolic murmurs.

The early diastolic murmur is heard best over the base of the heart in the second right interspace and along the left border of the sternum. It may, however, be heard over any portion of the precordium, and is sometimes heard best at the apex. The diastolic murmur over the base, practically speaking, means one of two lesions, aortic insufficiency or pulmonary insufficiency. Pulmonary insufficiency needs scarcely be considered. It is very rare, usually a congenital

lesion with an associated septal defect, and accompanied by all the typical peripheral findings of congenital heart disease, such as cyanosis and club fingers. So, in the absence of the signs of congenital heart disease, we may consider all early diastolic murmurs as due to aortic insufficiency.

Diastolic murmurs have the following characteristics: The murmur has a typical exhaust blowing sound. It is constant, the same every day. It is associated always with cardiac enlargement. When the early diastolic murmur is very faint and the heart heating rapidly, it may be overlooked. It is best always to have the patient rest for a short time to slow the rate. Then with the patient lying flat on his back at the end of complete expiration, with the chest flattened as much as possible, the murmur is more audible. Often it can be heard better with the naked ear against the chest wall. This is one place in which the flat-belled Bowles stethoscope is of value. It is not necessary to insert the scope beneath the ribs, and the large flat bell may be placed over the sternum. The murmur is intensified and faint murmurs more easily heard.

Presystolic murmurs. The murmur of mitral stenosis, the typical presystolic murmur, is always associated with, and immediately precedes, a loud snapping first sound. It is this loud snapping first sound which attracts the attention of the examiner to the fact that the patient may have a possible mitral stenosis. In normal hearts beating rapidly, the first sound becomes very snappy and is apt to be mistaken for the loud first sound of mitral stenosis. This was a very common error in the early heart work in the army. To exclude this cause of the loud first sound the patient should rest for a short time to slow the rate of the heart. The murmur is more of a rumble and very definitely crescendo in character, becoming louder as it approaches the first sound, and ending abruptly with the loud snappy first sound.

Often the presystolic murmur of mitral stenosis is not very audible with the patient in the upright position. There are several ways of increasing the intensity of the murmur. The method most commonly used in our work and found to be the most satisfactory was that of changing the patient's position. He was requested to lie on his left side with his chest protruding over the edge of the examining table. This allowed the apex to drop against the chest wall. Then by pressing the bell of the stethoscope deeply into the interspace against the apex, to overcome any adventitious sounds, the presystolic murmur is very definitely heard as a loud rumble increasing in intensity, and ending with the loud first sound. Another method of accentuating the presystolic murmur is the use of amyl nitrite. After a few whiffs of amyl nitrite this murmur becomes much more audible.

A presystolic rumble may occur in enlarged hearts or with aortic insufficiency. This murmur is spoken of as the Flint murmur, and is distinguished from the murmur of mitral stenosis by the absence of the snappy first sound.

Cardiac Irregularities. The most common irregularity encountered was the extra systole. It was quite common. When only occasional they were considered of no importance, but when very frequent, were considered as evidence of myocardial trouble. We were quite surprised to find that many of these hearts, with very frequent extra systoles, cleared up entirely by the removal of foci of infection, especially infected tooth roots. Many very irregular hearts which simulated auricular fibrillation cleared up entirely after extracting several teeth whose roots were the seat of infection.

Summarizing, there are five important conclusions which the army work confirmed and the importance of which it emphasized. First, systolic murmurs, unless accompanied by definite cardiac hypertrophy, are of little practical importance and we should avoid alarming the patient by telling him that he is suffering from serious heart disease. Second, functional murmurs are very common. Third, diastolic murmurs, practically speaking, are always organic. They are often faint and easily overlooked, and frequently not associated with the typical peripheral signs of aortic insufficiency. Fourth, the degree of cardiac enlargement is a very important factor in determining the significance of cardiac murmurs. The direct method of percussion is a great aid in percussing out cardiac dullness, and should be more generally used. Fifth, extra systoles often disappear after the removal of foci of infection.

OBSERVATION IN SPHENOID SINUSES*

JOHN A. CAVANAUGH, M. D.,

CHICAGO

For some time I have been interested in knowing the role played by the sphenoid sinus. Many conditions which seem vague and not to be accounted for can be illuminated by careful study of these cells. Doctors Sluder, Loeb, Onoidi and others have done much to clear up some of the dark corners, but there is still much to be learned.

When we consider the association of the dura, large blood vessels and nerves, especially the optic and the fifth which are so closely related by nerve communication, we must realize the many symptoms which are liable to arise from this deep-seated cavity; transferred and referred impulses of these nerves are clearly outlined by J. Parsons Schaeffer in his book, "On the Nose and Olfactory Organ."

It is not easy to diagnose sphenoid affections, especially the non-suppurative type; it requires very careful and painstaking examination to determine its involvement.

I remember hearing Dr. Otto Stein of Chicago say that symptoms referred to the orbit and cranial cavity, which arise from sphenoid sinus disease, often show no manifestation in the nose, but when the sphenoid is opened it is surprising how the symptoms sometimes disappear. I believe, however, pathology can be demonstrated in these cases if we but search for it.

It is not always possible to make a diagnosis at the first examination and many of us make mistakes. In my opinion the pharyngoscope is a necessity for making a thorough examination of this obscure area.

I am firmly convinced that many obscure eye symptoms can be traced to pathology in these cavities. I have examined many eye cases for Dr. D. C. Orcutt of Chicago, in which the diseased conditions have improved or disappeared after treating of this sinus.

Being interested in knowing just what role, if any, micro-organisms might play in this cavity, I have made cultures from the sphenoid of many cases, whether the sinus was suspected or not. The method of securing the culture was as follows: Cocaine was applied to give better access to the ostea, the surface cleaned with a weak iodine solution, 1 per cent silver nitrate applied around sphenoid area, then compound tincture of benzoine at area of the ostea. A silver canula with tapering end was introduced into the cavity through the ostea. A Holmes eustachian applicator with sterile cotton wrapped around its end was passed through the canula into the cavity and swabbed around, then applied to the culture media. In one of Dr. Orcutt's cases, after dilating the ostea the patient remarked that his vision was improved. I noticed also that it was only in cases where cultures were obtained that improvement was evident. Where the culture was negative there was no improvement; whether this will always be true I cannot say, as the number of cases with negative cultures were few. Cultures taken from fifty sphenoids were made; of this number, thirty-four showed staphylococci, six micrococcus catarrhalis, three staphylococcus and diphtheroid bacillus and six negative cultures. In one case, where I enlarged the sphenoid opening for aeration and drainage I secured a saphylococcus growth; about six weeks later, when opening the other side, I found another staphylococcus infection, and a negative growth on the side previously operated on.

Local areas can be affected without the entire mucous membrane of the cavity partaking in the process. The smaller the involvement the slighter the symptoms and vice versa.

I am making it a routine practice, where obscure symptoms are present, and a sphenoid sinus is suspected, of making a culture, and if bacteria are found, of enlarging the ostea. I speak now only of the insidious type, not of the suppurative. I wish here to express my thanks and appreciation to Miss Sarah Stokes, the bacteriologist at Henrotin Hospital of Chicago, for her painstaking examination of many of the cultures.

It occurred to me that there should be some way to get the anatomical position and relation of the sphenoid cavity to the surrounding areas, which are usually indefinite in the radiograms of the living subject, I dilate the ostea of these sinuses and inject barium suspended in buttermilk, which flows readily, and can be easily washed from the cavity. After filling the sinus with this mixture I mop away any solution outside the cavity, and introduce a piece of cotton to prevent the liquid from flowing out; radiograms are then taken. This gives a clear and definite knowledge of the size, shape and relation of the sinus to the surrounding parts.

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I believe the postero-anterior stereo gives better detail and a better idea of the relation of the sinus to neighboring structures. I do not advocate this as a diagnostic measure, but in cases where symptoms are obscure, and we suspect the sinus of being in close relation to surrounding structures, this procedure may be of value.

I have had a number of patients from Dr. D. C. Orcutt for sinus examinations because of obscure eye findings and have had some very excellent results; I hope to report on these cases later.

By certain intranasal markings I believe it possible to get a definite idea of nerve relations to the sphenoid sinus. I am indebted to Dr. Maximilian Hubeny of Chicago for his assistance and for his kindness in taking many of these radiograms.

DISCUSSION.

(Abstract)

Dr. J. C. Beck (Chicago): Said that to his knowledge this is the first attempt made to use the method of diagnosis from the analogue of it in the pelvis of the kidney. In his own work injecting the sinuses with the solutions, he found that there are some portions of the sinus that were apparently not reached. But he had filled sphenoid sinuses in the skull completely with bismuth and vaseline injections, because that is more of a semi-solid substance.

He doubted the statement that the sphenoid sinusus were ever free from germs, though the condition is improved by opening, as has been the experience of many men.

Dr. Hayden (Chicago): Thought that the same thing might be very well done in many of the antrum cases, especially those into which it is impossible to introduce a probe through the normal opening.

The solution that Dr. Cavanaugh uses can be readily washed out, and the advantage in using that in antrum cases would be to more clearly outline the extent of the sinus.

Many of the pictures of antra, especially those that are diseased, show a very indistinct outline on the x-ray. This method would show their outline very distinctly. It would also show the presence of polypi by exclusion. That is to say, if a polypus were located at a given point on the antral wall, the opaque substance would go as far as that polypus and then leave a space between the extent of the opaque substance and the antral wall, which we could surmise was a polypus formation or some sort of a tumor mass.

Dr. Tydings (Chicago): Referred to the question of malformations. In one case in which a man had injected one side. It went entirely behind the sinus on the other side, so that you could not possibly have reached that sinus in its entirety at its lowest point without going through the wall behind the sinus on the other side.

In another case there was only one single cavity and two openings.

Dr. Cavanaugh: I was glad to hear Dr. Beck's remarks. The method of filling the cavities is not difficult. The patient lies down while the cavity is being filled, and the solution being thin, will flow into the minutest corners. This mixture is injected until it flows from the ostea around the canula; then the overflow is wiped away, and a piece of cotton placed at the ostea to prevent the solution from flowing out. I can readily see, why the bismuth with vaseline, which Dr. Beck mentions, would be unsuccessful in this work as it would have to be injected under considerable pressure to find its way to many obscure areas, a procedure which I would dislike.

Radiograms of this cavity have been unsatisfactory, and even the anatomical relations were very indefinite. Pictures taken after injection were much more definite than those taken before and it was surprising the amount of information obtained. I believe there is much to be learned from this procedure.

As regarding the cultures from these cavities, I have no definite claims to make; only that six out of fifty cases were sterile, regardless of Dr. Beck's claim that they are all infected.

Dr. Pierce (Chicago) suggested that it is not necessary to really fill a cavity of this sort with any substance in order to get these results. If we can cause this to adhere to the walls completely, we will get a satisfactory result. Therefore, I would suggest that in doing this, you first dry the cavity by hot air, which is probably possible. Then spray or introduce in some way a substance that will make this barium adhere to the surfaces. Then introduce the barium in a mixture that will make it possible to adhere to this gluey substance, whatever it may be, and in that way you can secure probably a complete outline of the cavity.

Dr. Cavanaugh: The suggestion by Dr. Pierce might be a good one, but it seems to me it would be difficult to dry out many of the irregular cavities that we find and introduce this fixative coating to which the barium would adhere. However, it may be an excellent idea.

ABSCESS OF THE TONGUE*

J. C. DALLENBACH, A. B., M. D.

CHAMPAIGN, ILL.

The stratified epithelium which covers the tongue has characteristics in common with the skin on the one hand and with mucous membrane on the other. It is not derived from the original epiderm but by transition from the endoderm. The mucous membrane covering the under surface of the tongue is identical in structure with that lining the rest of the oval cavity. Over the anterior two-thirds of the dorsum of the tongue

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it is covered with filiform and fungiform papillae giving the characteristic roughness of that organ. At the back near the base is the circumvallate papillae of large size from eight to ten in number and formed in an inverted V. The mucous membrane behind the circumvallate papillae is smooth with simple mucous glands. Between the circumvallate papillae and the epiglottis is a collection of lymphoid tissue similar in structure to the tonsils.

It is difficult to account for the fact that the tongue situated so much more exposed than the tonsils and subject to frequent injury by the teeth and by food introduced in the mouth, is so rarely the seat of inflammation. It is difficult or indeed impossible in the tongue to distinguish between fluctuation and elastic swelling and the existence of an abscess may remain uncertain until it is punctured or incised.

Although cases of inflammation or abscess of the tongue are infrequent, the causes and conditions leading up to them are varied and the types are many.

Foreign bodies may remain imbedded a long while in the tongue and not be suspected. Inflammation may be excited by the presence of a foreign body and a hard circumscribed indolent tumor formed. This is sometimes followed by suppuration with the formation of a sinus and the discharge of the foreign body spontaneously, but more commonly the foreign body remains buried in an indolent inflammatory tumor. A foreign body is to be suspected if a wound, especially a puncture wound, does not heal readily, but examination by a probe or even an exploratory incision may be necessary to make the diagnosis.

The extraction of a foreign body should never be undertaken except after due preparation for possible hemorrhage, the patient anesthetized in a good light, the mouth well open and a thread passed through the tongue and assistance at hand.

Acute parenchymatous glossitis in some instances appears to be the result of direct exposure to cold air with the mouth wide open. Among predisposing causes are injuries especially by carious teeth. The onset is sudden, the tongue swelling to two or three times the natural size in twelve to twenty-four hours. There is considerable pain, the tongue is tender, and the dorsum covered by a thick opaque white fur. Saliva is profuse. Dysphagia is invariably present and dyspnea not uncommon.

This condition is not commonly followed by suppuration, but when it does occur it is in most cases limited in extent.

The treatment of acute parenchymatous glossitis is purgation, liquid diet, ice to the tongue and in the more severe cases incision making two cuts about two inches long, one-third of an inch deep, and two-thirds of an inch on each side of the mid-line. If not carried too deep, the hemorrhage is not severe.

When the causative agent is the Staphylococci, we have a condition known as Staphylococcal glossitis or acute abscess of the tongue, which is characterized by an elongated, hard, resistant swelling, which increases in size without any marked extension of inflammation. When situated on the dorsum of the tongue, it may show evident fluctuation. Such a swelling is likely to form as the result of a bite or sting of some insect, or injury from a pipe-stem or other object held in the mouth. It may be caused by a kick or blow under the chin. It is acutely painful, but the patient can swallow, and although he may show some difficulty in breathing, the condition is not dangerous to life.

Puncture or small incision should be made early under cocaine for even if pus is not found, the tension will be relieved and further suppuration limited.

It is probably only when there is a mixed infection with streptococci that there is extension to the neck with the formation of deep multilocular abscesses.

Streptococcal glossitis is marked clinically by a large amount of local odema and by danger of extension to the neck, glottis, lungs and pericardium. Extension in the neck is called Ludwig's angina. It commonly starts by an acute edematous swelling about the geniohyoglossi and the mylohoid muscles and about the sublingual glands and Wharton's duct. An acute edematous, brawny, swelling forms in the neck, which, if the patient survives, tends to break down into multilocular abscesses.

In acute superficial glossitis, or hemiglossitis, which is rarer than acute parenchymatous glossitis, the inflammation is limited to one-half of the tongue and is more benign. In most cases the left half only is affected. It is characterized by a definite nodule or lump in the inflamed

part deep in the substance of the tongue or raised on the dorsum, accompanied by general malaise, fever, pains in the side of the head and face and no dyspnea. The swelling usually subsides in three to six days.

Tubercular infection or tuberculoma are commonly seen on the side or tip of the tongue. It is exceptional for them to pass the size of a bean or small nut without breaking down.

Actinomycosis of the tongue is a very rare condition and nearly always originates by lodgment of a fragment of dried grain or piece of the husk or awn belonging to wheat, barley, oats or some grasses with which the fungus is carried in. It causes a small tumor from the size of a pea to an egg which slowly increases in size, and only late breaks down into an abscess, which ruptures, leaving a foul fissure or ulcer. The tumor is first superficial and later extends deep into the tongue.

Cancer of the tongue is always of one variety, epithelioma. It commences as a small nodule or ulcer usually on the side of the tongue.

Gumma of the tongue may be superficial or deep. They do not usually occur until four or five years after the primary sore. The superficial ones are the size of a pin head to a pea and are situated most frequently on the dorsum. The deep or parenchymatous gumma varies from quite small to the size of a walnut, and although they may occur in any part of the musculature of the tongue, are more frequently situated on the border or near the middle of the dorsal aspect. They are very indolent, produce little or no spontaneous pain, and are not usually tender. The mucous membrane covering them is unchanged. Chronic abscesses are usually more clearly defined then gumma and have a more distinctly rounded shape.

Dermoid cysts are situated in the mid-line beneath the main substance of the tongue and bulge beneath the chin. They may be the size of an egg or even the fist. In the mouth, they have a yellowish look as distinguished from the bluish look of ranula.

Follicular abscess of the lingual tonsil or lingual quinsy has the general symptoms of an ordinary acute tonsillitis without swelling of the faucial tonsils or pillars. It requires lancing.

In smallpox, typhoid fever, malaria, etc., there may develop in the tongue an acute local glossitis which at times ends in gangrene and sloughing.

Chronic abscess of the tongue is due to a slight injury. It commences insidiously and seldom is there a history of inflammation preceding the appearance of the tumor. It may exist for years without even reaching the size of an ordinary nut. The tumor is perfectly circumscribed, lies beneath the mucous membrane, which may be perfectly movable over it. Fluctuation is perceptible if the pus is not too tightly packed, and the little tumor is not usually painful or tender. Abscesses are commonly situated in the dorsum of the tongue in front of the circumvallate papillae which distinguishes them from mucous cysts which are always found behind the circumvallate papillae.

Chronic abscesses should always be suspected where there exists in the substance of the dorsal aspect of the tongue, a small circumscribed, smooth tumor of round or ovoid shape, of long standing, not very prominent, not translucent, and not painful or tender. Diagnosis may be confirmed by incision, and free incision with scraping generally serves for the cure of the disease. If the cavity fills again, owing to thick walls, excision will be necessary.

I wish to report the following case:

H. C. R. came to see me at my office on February 6, 1920, complaining of swelling of the tongue and pain on swallowing.

He gave the following history: Teamster. Does not smoke but chews tobacco. No history or injury to the tongue. Denies syphilitic infection. About three days ago first noticed a slight swelling of the tongue, which has increased since. Now some difficulty and pain on swallowing. No difficulty in breathing.

Examination. Well nourished man, no systemic signs of syphilis or tuberculosis. In the mid-line of the tongue in front of the circumvallate papillae is a mass the size and shape of a pecan, hard and not very tender. The mucous membrane covering the swelling is normal. Anterior cervicle lymph nodes slightly swollen and tender.

He was given a mouth wash to be used hot and a course of calomel followed by Epsom salts and asked to report the next day. This he failed to do, but two days later I saw him, at which time the mass had enlarged, the lymph glands increased in size and the patient was in considerable pain. At this time I thought I could detect fluctuation and advised incision. This the patient refused and sought advice elsewhere. He was treated expectantly and during the next few days the tongue increased to about three times its normal size, protruding from the mouth. Swelling

of the neck increased and pain was so severe it had to be controlled by hypnotics. Dysphagia was marked but at no time was dyspnea present. One week from the time I last saw him the abscess ruptured spontaneously, giving immediate relief. Within 48 hours the tongue was practically normal size and within a week the swelling in the lymph glands had subsided.

BRONCHO - PNEUMONIA WITH SOME COMPLICATIONS*

G. W. RICE, M. D.

GALENA, ILLINOIS

It is with some degree of diffidence that I bring before you the subject of broncho-pneumonia, so much having been written thereon since the influenza epidemic of 1918, but having had during the past year a few cases that were to me at least of more than ordinary interest, prompts me to do so.

It is particularly the primary form in children about which I wish to speak. I will therefore pass without mention the secondary form following the acute infections, recognizing, however, that a mild bronchitis may insidiously develop into a broncho-pneumonia and thus be considered a primary infection.

Broncho-pneumonia in contra distinction to lobar pneumonia is not a self-limited disease. It has no fixed habitation in the lung. It migrates from focus to focus. It has no cycle. Its treatment demands a cure. The varying elements entering into a case subject the course of the disease to much variation.

The disease is primarily one of infancy. The tender age of the patient, the various infective micro-organisms, the amount of lung tissue involved, and the natural resistance of the patient are elements that vary in every case. Therefore, the course of the disease is subject to no definite cycle.

Undoubtedly these varying elements entering into and developing the symptomology of broncho-pneumonia render the diagnosis in some cases difficult, and account for the different diagnoses sometimes made. As in a case I wish to report in which the following diagnoses were severally made by a number of competent men—gastro-enteritis, pericarditis, broncho-pneumonia, intestinal obstruction and meningitis.

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It is not my intention to discuss the etiology and pathology of broncho-pneumonia, nor all the complications that may develop, but, particularly, by reference to two cases point out the similarity of the gastro-intestinal complications that may arise to those of post-operative paresis of the intestines or ileus paralyticus.

Dr. P. Lockart Mummery of London, quoted by Guthrie, states that outside of infection ileus is the most dangerous, most fatal complication which follows laparotomy. Crandon and Ehrenfried state: "Acute intestinal obstruction is one of the most disastrous sequelae which the abdominal surgeon has to face and that this is most frequently due to paralytic distention." Warbasse states: "Paralytic ileus is one of the most distressing conditions the surgeon is called on to treat, and says it is due: 1. To infiltration of the wall of the intestine with leucocytes, serum, and other products of inflammation. 2. To the effects of intra-intestinal and extra-intestinal toxines upon the motor nerves, and 3, to traumatism to the intestines, peritoneum, and the abdominal nerves."

Briefly stated we have in ileus paralyticus following abdominal section, distention, pain, nausea, followed in some cases with black copious vomitus, pinched facial expression, increased pulse rate, and labored breathing. A picture once seen will not be forgotten.

I wish to state that an identical condition can and does develop in some cases of severe pneumonic infections.

The etiology of the gastro-intestinal complications found in some cases of broncho-pneumonia can be attributed to the profound intoxication, either extra-intestinal or intra-intestinal, which exerts an inhibitory influence on the nerve energy distributed to the splanchnic and pneumogatsric areas.

In such conditions we find beginning abdominal distention, increase in pulse rate, more rapid breathing, nausea which may increase in severity until vomiting occurs. The vomitus at first consisting of mucus and stomach contents later changing to black color and increasing in quantity. A rapid decline in the strength of the patient and death following. A typical picture of intestinal paresis extending to paralytic ileus.

Case 1. A normal, very bright child, three years old, with the best of home surroundings and care, developed an attack of pneumonia the diagnosis of

which was confirmed by definite physical signs and consultation. The third day of the disease abdominal distention developed. He complained of pain in the abdomen. There was increase in temperature, pulse rate and respiration. Nausea developed within a few hours followed by vomiting, first of mucus and stomach contents, later by a black copious material. Facial expression pinched and sunken eye balls; rapid decline and death followed within twenty-four hours. A perfect picture of paralytic ileus.

Case 2. This case is interesting from the standpoint of the complications the number of consultants, and the various diagnoses made. H. F., age nine months. Son of a physician. He was a normal baby. Weighed seven and two-tenths pounds at birth. Was nursed until six months old, then placed on modified cow's milk and thrived. Was never sick.

About October 1, 1919, the father noticed that the child was irritable and refused to take his food as usual. At eleven P. M. he awakened crying and was in much distress. An enema was given by the father and the child went to sleep and slept until morning. The stool passed was greenish colored and the father diagnosed gastro-enteritis and gave an intestinal antiseptic.

The first few days the temperature was not taken. The child did not improve, but grew worse and the father making a more thorough examination found temperature 103, pulse 120 and respirations 30. Chest examination he reported negative and therefore he continued with intestinal treatment considering that the trouble was in the bowel.

Morning, noon and evening temperature the father stated varied the first week or ten days of the disease from 100 to 103.

The child continued to grow worse and on October 22 the father asked me to see the baby. I found what appeared to be a very sick child. Slight stupor, some cyanosis, temperature 106, pulse 150 and respirations 55. Physical examination showed a well nourished child. Over the left lung both in front and back were areas of mucous rales and bronchial breathing and weakened respirator murmur. Some dullness I thought over the middle portion of the lung. The lower portion of the right lung near the spine showed a similar condition only much more localized. There was marked tympanites and much abdominal distention although the child had had an enema and had passed some greenish stools during the preceding twenty-four hours.

Diagnosis broncho-pneumonia with intestinal paresis.

The father, not being quite satisfied with this diagnosis, was asked to call one of our colleagues, which was done; and this physician independently of either of us made the same diagnosis. Still failing to see the light as we attempted to illuminate the surroundings the father called an internist from Dubuque who, after a careful history taking and physical examination, diagnosed pericarditis. Then our co-worker, the father, was up in the air, and called in consultation a former associate who from the history and physical findings made a diagnosis of broncho-pneumonia with intestinal complications.

Five days later, the child doing fairly well under the circumstances, but not making any great strides towards recovery, and still suffering from abdominal distention and continued signs of intestinal paresis, although we were getting flatus expelled quite copiously at times with a bowel movement or two every twenty-four hours, the father maintained the opinion that the little fellow had an obstruction in the small intestine, and that the bowel movement and flatus were only from the lower bowel, and that he should be operated on at once. Not agreeing with him in this but perfectly willing that he should call a surgeon of more experience than we from our country town. He called one from a well-known Chicago office requesting him to come prepared to operate for obstruction. He also called one from Freeport and one from Dubuque.

One of these eminent men diagnosed meningitis due to an infection from the accessory sinuses. One agreed with us who held to the diagnosis of broncho-pneumonia, with paresis, and the other was more or less non-commital, but all agreed that operation was not indicated.

We have in this case, including the father, eight consultants and five diagnoses as follows—gastro-enteritis, broncho-pneumonia, pericarditis, meningitis and obstruction of the bowels.

We found in this case that the distention could be ameliorated by the hypodermic use of salicylate of eserin and pituitrin repeated every four to six hours until flatus was expelled.

The more the distention the higher the temperature rose, the more restless the patient became, the breathing became more rapid and labored, and cyanosis developed.

The child coughed very little and this was misleading to one of the consultants.

The temperature was very remittent as will be found in cases of broncho-pneumonia. As an area of infection begins to resolve the temperature falls, and as the infective process extends to other regions it rises again.

The evening that the surgical consultation was held the child was very ill and the prognosis appeared grave. In fact, there was some slight evidence of a meningitis developing in the shape of a little rigidity of the muscles of the neck and a slight puffiness of the lids of one eye, which the nurse attributed to the child lying on the side.

The neck rigidity we who had been taking care of the patient attributed to the action of the pituitrin given.

The next morning the child was very much improved and went on to a rapid recovery.

Conclusions. In every case of pneumonia the abdomen should be watched as carefully as the chest. At the first indication of distention meas-

ures should be taken to ward off a possible approaching ileus.

Complications arising may mask the real condition and mislead the attending physician and consultants.

Paralytic ileus may follow severe pneumonic infections, in which it becomes as grave a complication as when following abdominal section.

THE SAVING OF THE FOOT FUNCTION BY SKIN GRAFTING*

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Evelyn A., aged 7 years, barefooted, mounted a bicycle behind another little girl, both sitting in the saddle. Her great toe caught in the pedal of the machine; her body astride the saddle acting as resistance, caused the member to be pulled off at the second joint. The skin on the dorsom of the foot stretched before it separated, and with the natural retraction after separation, the great metatarsal bone at its distal extremity was left exposed to the extent of two inches.

This occurred June 11, 1920. The problem was to save the bone in order to retain the function of the foot. The treatment consisted of bulky dressings composed of gauze and cotton, continuously saturated with a solution similar to the Ochsner "boric-alcohol solution." In due time all shreds of devitalized tissue sloughed off in the absence of any infection, leaving a beautiful granulating surface extending to the end of the bone but not covering it.

On June 25, the wound was covered with fragments of placental membrane, a few of which caused small islands of epithelium with great shrinkage of the surrounding granulations.

July 3, a general anesthetic was given and an Esmarch bandage applied from the foot to the thigh with a tourniquet above this. This left the limb bloodless on removing the bandage.

Skin grafting after the method of John Staige Davis of Johns Hopkins was resorted to; which consists of taking small deep grafts procured by inserting the point of a needle into the skin elevating a small fragment, tent-like, and severing with a sharp knife. These grafts were planted so closely that their edges touched. When cut, the thin edge of the small graft curls under. Care must be taken to uncurl them and at the same time press the center, thereby causing a suction which causes them to adhere.

Scarcely an implanted graft failed to grow, giving the patient a firm, thick skin to the end of the bone; but the end of the bone was still bare, a surface the size of a dime or even greater. Massage loosened the new skin, which was daily stretched over the end of the bone as much as possible. The child stubbed the part causing it to bleed, which in turn caused an irritation, which was beneficial, as it caused granulation tissue, which seemed to be a hybrid between periosteal and muscular tissue. By not letting the inflammation subside, this granulation increased, and the skin crept gradually over the head of the bone. From pressure the spongy head absorbed sufficiently to let the artificial skin completely cover it.

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HERNIA OF THE BLADDER—REPORT OF TWO CASES*

Leigh F. Watson, M. D.

CHICAGO

The first case of bladder hernia was reported by F. Plater of Basle in 1550, and the second case, by Jean Sala of Venice in 1620. In 1752, Verdier published the first important account of this condition which embraced the study of 20 cases, and contained a description of prevesical lipoma and the symptoms of vesical hernia much as we know them today.

On account of the high mortality in preantiseptic days and the usual recurrence following the early operations for hernia, surgical measures were seldom undertaken except in the presence of strangulation, and then no attempt was made to expose the inguinal canal, consequently small vesical hernias were often overlooked and the diagnosis was usually made postmortem. For this reason Moynihan was able to collect only 38 cases up to 1890. With the advent of the modern operations for inguinal hernia, which called for a free exposure of the canal and the isolation and ligation of the sac near the internal ring, a fresh impetus was given to the study of bladder hernia, and Moynihan found 112 cases of the inguinal and femoral vesical types, recorded between 1890

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and 1900. Brunner, by including all forms of bladder hernias found 180 cases in literature up to the end of 1896. Skeel, collected 133 cases between 1896 and 1908. Heineck, in 1914, analyzed 164 vesical hernias that had appeared in literature since 1896. From 1915 to 1919, inclusive, I find that 18 additional cases of bladder hernia have been recorded in literature.

Varieties. Inguinal bladder hernia is by far the most frequent variety and almost always occurs in men. The femoral type is usually found in women. Both inguinal and femoral are more frequent on the right side, and in rare instances they are bilateral. Alessandri collected 9 cases of bilateral vesical hernia.

Other varieties which are very rare and only need to be mentioned are obturator, ischiatic, perineal and hernia of the linea alba.

Bladder hernia is customarily divided into three varieties as first proposed by Jaboulay and Villard: Extraperitoneal, intraperitoneal and paraperitoneal.

Extraperitoneal cystocele is the rarest of the three varieties. It is always direct in the inguinal region and as a rule is very small, although one has been reported as large as an orange. Moynihan remarks that a careful study has shown that many so-called extraperitoneal hernias have a small diverticulum whose outer wall of peritoneum is the inner covering of the sac, and in reality, they are paraperitoneal. Because extraperitoneal hernia lies entirely outside the sac, it is most liable to injury by being opened through mistake for the sac itself, especially if the operator has lost his landmarks and searches for the sac internal to the deep epigastric artery.

Intraperitoneal cystocele has a complete hernial sac that enters the inguinal canal external to the deep epigastric artery. The bladder enters this sac completely covered by peritoneum. The portion of bladder involved is almost always the upper part of the posterior surface. These hernias are sometimes very large and are always secondary in origin. The rings are widely dilated. The sac may contain only bladder, or it may be associated with omentum and intestines.

Paraperitoneal vesical hernia has a sac, and may be direct or oblique. The bladder is on the inner side of the sac and the peritoneum of the inner wall of the sac is the serous covering of the outer portion of the bladder. The remainder of the bladder outside of the abdomen has no peritoneal covering. The bladder is outside of the sac and not a part of the hernial contents.

The paraperitoneal form is by far the most common and may contain a small section of the bladder or the entire bladder, prostate and ureters. According to Sjovall, 51 per cent of paraperitoneal hernias are thickly covered with fat (Lipome herniare of Verdier). After freeing the cord and reducing the hernia, this mass is sometimes mistaken for a lipoma, a cyst of the cord or a second sac. Lotheissen remarks that the more careful the stripping of the sac up to the deep epigastric artery, the more chance there is of discovering cystocele in its early stages. Von Hacker has shown that in large hernia in elderly individuals the normal bladder can often be drawn into the hernial wound without difficulty, owing to the relaxation of the peritoneum. I agree with Skeel, who believes a considerable proportion of paraperitoneal hernia are artificially produced at the time of operation. Brunner, in 180 cases, found 5 extraperitoneal, 18 intraperitoneal and 100 paraperitoneal.

Etiology. The most important causative factors are age and sex. Bladder hernia is primarily a disease of adult life and old age. It is much more frequent in males than in females. Imbert in 53 cases found 48 males and 5 females. Alessandri in 144 cases noted 115 males and 29 females.

It is much less frequent in children. Miller states that in 4,285 operations at the Hospital for the Ruptured and Crippled there were 8 cases of bladder hernias in children. On the other hand, Carmichael found 3 cases in 152 hernia operations on children. Alessandri reports 6 cases in children under 12 years of age and Skeel diagnosed a congenital femoral bladder hernia before operation in a girl 5 years old.

The principal predisposing factors are flaccidity and habitual overdistension of the bladder, especially in association with prostatic disease. Femoral hernia in women is favored by obesity and pregnancy.

Frequency. Inguinal bladder hernia is much more frequent than femoral. Jaboulay and Villard found 70 inguinal to 12 femoral vesical hernias. Bladder hernia is generally believed to constitute about 1 per cent. of all hernias.

In 2,543 consecutive hernia operations col-

lected by Moynihan, 23 were vesical. Blakeway believes one per cent. is much too low, especially for femoral hernia.

Diagnosis. According to Brunner, the signs and symptoms can be divided best into two groups, manifest and latent. 1. The cases with a large area of the bladder involved, and with unquestionable evidence of vesical hernia. 2. Those cases in which only a small portion of the bladder is involved and the typical symptoms are lacking.

A large or moderate sized bladder hernia is generally smooth, rounded and fluctuating and dull on percussion, and the fluid can often be forced into the pelvic bladder by lying down, or by firm and continued pressure. The tumor varies in size at different times, and is often smaller and softer after micturition. As pointed out by Sir Astley Cooper, it can be distinguished from hydrocele because it is not translucent. It also differs from hydrocele in that it is more or less reducible and reduction is followed by a desire for urination, which is often accomplished in two stages—the patient first empties the pelvic portion of the bladder, then on pressing the tumor or assuming a peculiar position, the urine in the cystocele flows into the pelvic bladder and is voided.

A sound will often aid in the diagnosis either before or during operation. If the tip can be passed into the bladder and then into the hernia and the sound felt just beneath the skin, the diagnosis is positive of cystocele. Cystoscopic examination is also valuable.

The greatest difficulty is probably encountered in those cases seen for the first time while suffering from strangulated inguinal or femoral hernia. The symptoms of bladder hernia that may have been present are masked by those of strangulation. A careful study of the case may throw some light on conditions and if the patient has had difficult or disturbed urination, or if the symptoms have been relieved at other times by micturition, the surgeon must be on his guard and look for bladder involvement at the time of operation. In rare instances symptoms of bladder hernia simulating strangulation have been relieved when the patient voided and emptied the portion of bladder that had been pinched in the sac. Femoral vesical hernia may present no symptoms except frequency of urination, and change in the size of the tumor after voiding.

Guterbock emphasizes the value of rectal examination. The normal bulging of a distended bladder toward the rectum is absent in vesical hernia.

Out of 175 cases of bladder hernias studied by Alessandri from a diagnostic standpoint, 5 were diagnosed before operation; 71 were diagnosed at operation without wounding the bladder; 76 were diagnosed during the operation with injury to the bladder before the condition was recognized, and 23 were not diagnosed until after operation.

Prognosis. If the bladder is not wounded the prognosis is as good as in inguinal and femoral hernia. There is a higher per cent. of recurrences following bladder hernia operations than in uncomplicated cases, which is due to the difficulty of closing the large opening left by the bladder. The danger lies in wounding the bladder. The most exact closure is not equal to the unwounded viscus. Infection of the wound, extravasation into the subcutaneous tissues, urinary fistula and leakage into the peritoneal cavity, in patients of advanced age and feeble resistance, make the prognosis grave.

Treatment. Operation is the treatment of choice for hernia of the bladder. It is seldom possible for the patient to wear a truss with any degree of comfort or safety. When a vesical hernia is diagnosed or suspected before operation, preliminary treatment directed toward the bladder is advisable—internal antiseptics, bladder irrigations or instillations.

The danger of wounding the non-herniated as well as the herniated bladder during operation must always be borne in mind. Any thickening of the upper part of the sac, especially on the inner side, should be examined most carefully.

After the neck of the sac is stripped up for resection, it should be freed of any thickening and should not have an excess amount of fat attached to it. Until the sac is completely freed from all surrounding structures it should not be transfixed, ligated or excised. Often the bladder is wounded because it is not seen. The greatest danger lies in cutting away a portion of it after it has been ligated en masse with the sac, and not discovering the accident until leakage of urine into the peritoneal cavity sets up a general peritonitis that may appear within a few hours after operation. Death has been known to occur within 24 hours after this accident.

Wounding the bladder usually occurs when the operator is working under difficulties, perhaps away from a hospital, and at times without an assistant, and with a poor artificial light which makes it difficult to dissect out the sac, and to identify the structures that may be adherent to it which would be promptly recognized under more favorable conditions.

In case it is impossible to identify a suspicious tumor, the queckest way is to open the abdomen above the hernia and examine it from the inside. The hypodermic syringe has proven useful as an instrument of diagnosis. Fluid can be safely aspirated with a fine needle inserted obliquely into the bladder wall. Testing with litmus paper will tell at once if it is urine. This test should always be applied to any suspicious looking cyst or hydrocele of the cord.

The sac must not be stripped up if it covers a considerable portion of the bladder, but excision should be made around the bladder attachment, going as high as possible on the outer side, where the sac is free. The bladder is loosened gently from its surroundings to avoid tearing, and returned to the abdomen and the wound closed by a circular suture or the purse string method. With the bladder safely out of the way the radical operation can be done for the hernia as far a conditions will permit.

What to do if the bladder is accidentally wounded: If the bladder is accidentally incised, it should be caught immediately with hemostats and a clamp placed acros sthe opening. Compresses should be placed so that the urine will not contaminate the wound or reach the abdominal cavity. The tear or cut should be closed with interrupted sutures of chromicized catgut in two or three layers. No sutures should go through the mucosa which should be inverted in closing. The bladder is anchored in the lower part of the wound. The tissues that have been contaminated with urine are swabbed with iodine to produce adhesions and all dead spaces are carefully closed. A drain is inserted down to the bladder and allowed to remain for two or three days. A retained catheter is usually unnecessary, besides being the source of considerable discomfort. Catheterization every four hours is sufficient. Argyrol should be kept in the bladder—just enough to disguise the bloody urine so that the patient is unaware of the accident.

If the bladder injury is not recognized for 12 to 36 hours after operation, the prognosis is serious. One should suspect vesical injury in the presence of frequent and painful urination, vesical tenesmus, bloody urine per urethra or oozing through the dressings. If urine is entering the abdominal cavity the symptoms will be those of a fulminating general peritonitis. The wound must be opened immediately, the bladder injury found and sutured.

CONCLUSIONS

1. A careful history should be secured previous to operation, inquiring particularly for symptoms that might point to bladder involvement. Bladder hernia should be suspected in any case where a second sac, cyst or hydrocele is found. The inner of the two sacs is usually the bladder. It should always be borne in mind that bladder hernia may be present where there are no symptoms in evidence, especially in prostatic cases.
2. The sac should always be carefully freed from all surrounding structures before excision, and never transfixed or ligated blindly. If wounded, the bladder should be immediately closed with two or three layers of interrupted chromic catgut sutures.
3. The bladder should be anchored in the lower part of the wound so it will be handy in case of leakage. Argyrol instillations sufficient to discolorize the urine will keep the patient unaware of the injury.
4. The outlook is good if the bladder is recognized and not injured. The mortality of bladder wounds is high, varying from 12 to 25 per cent.

REFERENCES

F. Plater: Observat. Libr. III, p. 848. Ed. 1641.
C. Verdier: Researches sur la hernie de la vessie, Memoirs de L'Acad. roy. de chirurgie, 1753, p. 1.
Sir A. Cooper: On Hernia, 1804, p. 327.
Guterbock: Die Krankheiten der Harnblase, Leipsig, 1890.
Jaboulay et Villard: Des hernies inguinale et crurale de la vessie, Lyon Medicale, LXXXV, p. 239.
Imbert: De la cystocele crurale, Ann. des Maladies des Organes genito-urinares, 1896, p. 396.
P. Brunner: Ueber Harnblasenbruche, Zeitschrift fur Chirurgie, XXXXVII, 1898 p. 121.
B. G. A. Moynihan: Anatomy and Pathology of Rarer Forms of Hernia, The Lancet, 1900, 1, p. 596.
Alessandri: Hernies de la vessie avec aprecus sur la pathologie, Annales des Maladies des Organes genito-urinares, 1901, p. 25.
Carmichael: Hernia in Children, British Medical Journal, 1906, p. 254.
R. E. Skeel: Injuries to the Bladder During Hernia Operations. Amer. Jour. Obstetrics, 1908, LVIII, p. 964.
Finisterer: Der Harnblase, Wein. Klin. Wich. 1916, XXIX, p. 241.
J. Saliba: Hernia of the Bladder, J. A. M. A. 1917, LXVIII, p. 1237.
A. P. Heineck: Hernia of the Urinary Bladder, Surg., Gyn. and Obstetrics, 1916, XXII, p. 592.
W. Roberts: Hernia of the Bladder, Louisville Jour. of Med. and Surg. 1914-15, XXI, p. 260.

L. Frank: Sliding Hernia of the Urinary Bladder, Miss Valley Med. Jour., 1918, XXVM, p. 350.
S. G. Gay: Hernia of the Urinary Bladder, American Jour. Surg. 1918, XXXII, p. 301.
Miller: Quoted by Roberts.
H. Blakeway: Hernia of Urinary Bladder, The Lancet, 1918, 1, p. 799.
Rougier: Hernie de la vessie, Jour. d'Urologie, 1919, p. 587.

THE TECHNIC FOR THE REMOVAL OF FOREIGN BODIES*

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CHICAGO.

The purpose of this paper is to present, and I hope elucidate, that most commonly met problem of war surgery, as briefly and concisely as possible, which in my judgment was the most difficult for civilian surgeons and men accustomed to war surgery. While the special regions, such as brain, nerves and thorax, received the attention of trained surgeons, the common wounds caused by missiles were often left to the neophyte. Those of you who have been doing reconstruction work, will agree that in some of the cases, the unnecessary amount of scar tissue, the ununited nerves, the stiffened muscles and joints, testify to our apprenticeship.

A proper understanding of these wounds presupposes some knowledge of the missiles that caused them, and not only the missiles themselves, but the effect of their different velocities on solid and hollow viscera and tissues; also the types of wounds caused by these projectiles.

The most common foreign body was the high explosive fragment, either from high explosive shells, bombs, grenades or shrapnel casing. It varied from metal dust to four or five inches in size. Its shape was as varied as its size. Its destructiveness was in direct ratio to its size and the nearness of the victim to the shell.

The next in order was the rifle ball, or machine gun bullet. Up to five hundred yards it rotated on its axis and might keyhole, beyond five hundred yards it slowed down and was less destructive. Its velocity was such that the energy radiated from its point of impact, like the ripples on water when a stone is dropped into a pond. In elastic tissue, like skin, the force of the impact was absorbed in a short radius, in muscles less so, hence the correspondingly greater destruction of tissue. In the shafts of bones, because of its rigidity, the force of impact was delivered to the joints, hence the synovitis. Shrapnel balls came next, a round ball of lead or composition. They were less destructive and little used in the last year of the war. Revolver bullets rank in destructiveness with shrapnel, and were less frequently met with. The size of military bullets and shrapnel balls is well known and uniform, unless the bullet should break up and the core be found away from the jacket, which is a rare occurrence, but artillery projectiles vary greatly in size. X-ray operators usually classify them under five heads, and give the following names to their classifications:

1. Metal dust, fragments up to 1 mm. in diameter.
2. Minute projectiles, up to 4 mm. in diameter. The size of a grain of wheat.
3. Small projectiles, between 4 mm. and 1 cm. in diameter, up to the size of a large pea.
4. Medium sized projectiles and fragments between 15 mm. to 2 cm. in diameter, or the size of a large bean.
5. Large projectiles, various bullets and fragments over 2 cm. in diameter.

Thus in localizing projectiles, the x-ray operator has a standard of measurements, which is accepted by the surgeons. It is evident that projectiles of the first category cannot be removed without taking away a large amount of tissue, and those of the second can seldom be extracted. They can usually only be removed by the control of the screen, provided it has been possible to mark them, as the tactile sensation given to the surgeon's finger is often not sufficient to permit of their extraction. High explosive projectiles, because of their irregular and rough shape are much less tolerated by the tissues than bullets and shrapnel balls. It is further evident that this class of projectiles is much more frequently the cause of early or late septic accidents.

The formidability of a wound from a foreign body varies with the geographical localities. A densely populated country where the soil is highly cultivated produces more serious infections than an open sparsely settled country. Latitude, also, has an influence on the severity of infections. Compare the wounds of a moist tropical country with those of the dry plains farther north. It has been observed that wounds received in northern Canada are comparatively slightly infected. For example, the war area of Belgium and France produced much more formidable infections than would wounds received

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on our southern border, particularly in a dry season.

To summarize, we would say that climate, soil and rainy or dry seasons are important considerations in deciding how much surgical exposure a wound should have to sterilize it. The infection of these wounds varies greatly with the region of the body penetrated. The buttocks, the thigh, the calf and the deltoid region are the danger zones in the order named. In these regions wounds lodging a foreign body are classed as emergencies and require immediate operation. Wounds of the face and exposed parts of the neck are cleaner because the projectile does not carry clothing and debris into the tissues with it. The face has an added protection due to the ramification of its blood supply.

Thus it is nearly always possible to save practically all the skin and muscles in repairing face wounds. As evidence one has only to see the good results attained by trained facio-maxillary surgeons.

The size and velocity of a projectile determines its penetration and destruction of tissue. This is particularly true of high explosives, which by their irregularity of shape and flight tear ragged holes and pulp muscle and soft tissues, as well as smashing bone into splinters. The rifle bullet, however, may after it has steadied down in its flight, pass through a fleshy part of the body with a small wound of entrance and exit and comparatively little destruction of tissue, provided it misses the bone. We have seen many chest wounds where the bullet has passed clear through and the patient recovered, without operative interference. The same is true of liver wounds. The time intervening before a wound receives surgical care is a very important factor in determining the extent of sepsis. It is probable that up to 12 hours the bacteria have not penetrated deeply and probably not beyond those tissues destroyed by the missile or lying along its track. About four days after a wound has been received, unless there is considerable destruction of tissue and sepsis, the track of a wound is difficult to find. Resolution has begun and it takes a very experienced operator to follow the path of the missile. In other words, the track of a foreign body in which the tissues have stood the infection tends to become obliterated and the missile encysted. From what I have gathered from writers on this subject, and my own observation of a large number of wounded among our allies, as well as German wounded on the eastern front and later coming into our hospitals on the west with the foreign body still in the tissues, I believe that the migration of projectiles in the tissues is much rarer than is thought. A projectile tends to become encysted and does not travel as does a needle. The exceptions are brain projectiles which, as is well known, tend to occupy the lowest point in the head of the patient. We would hardly class a missile loose in a joint as a migrating foreign body.

Some Types of Wounds. For the convenience of description, I have classified five types of wounds which with the addition of wounds of special regions would make six classes. In their order of severity, they are:

1. Wound of small entrance and if an in and out wound a small exit with a narrow and almost obliterated track, found when soft tissues alone are involved caused by rifle balls, revolver bullet, shrapnel and small pieces of high explosives. In the case of the rifle ball and high explosive the initial velocity is usually considerably reduced. From 500 to 1,800 yards from the muzzle of a rifle the bullet because of its reduced velocity is said to be in the zone of perforation.

2. Wound of entrance small, track large, ranging from 2 or 3 times the diameter of the missile to a large cavity filled with blood clot, pulped muscle and detritus. Such wounds are caused by rifle and machine gun bullets under 500 yards from muzzle and shrapnel shell casings and high explosive shell pieces.

3. Wound of entrance large; wound funnel shaped with apex at bottom, caused by high explosive and shrapnel. Missile very irregular and rotating in flight. A rifle ball in the first part of its flight rotates or wabbles on its long axis and if deflected may keyhole causing such an ugly, ragged wound. As a rule, the velocity is so great in the first 500 yards of flight that the missile passes clear through and makes an exit wound larger than the wound of entrance. Such bullets have been erroneously called explosive. What really happens is that the velocity is so high on impact that the tissues at some distance from the passage of the bullet are destroyed by the radiation of force. The destruction of tissue is equal to the weight times the velocity times the diameter and the initial velocity from 2,000

the bullets of modern warfare are 3 or 4 times the diameter and the initial velocity from 2,000 to 3,000 feet per second, it is easily seen that the character of the wound varies greatly at different distances.

4. Missile enters wound at an acute angle. Wound at entrance larger than track which is at an acute angle with the limb, caused by shapnel, shell casing and high explosive shell pieces.

5. Either class 2, 3 or 4, including fractures. Where the velocity of a missile is low it may embed itself in the bone if it strikes a cancellous area, as for example, that part of the femur just above the knee. If, however, the missile still retains enough velocity to damage bone, it often knocks off a piece when it strikes the denser areas of the shafts of long bones, but when the size and velocity is great enough, it results in a compound comminuted fracture which because of varying velocities may be all the way from a fracture with a few splinters of bone to a badly comminuted mass with a loss of 3 or 4 inches of bone and a cavity filled with bone fragments from the size of bone dust to splinters 4 inches long, together with muscle detritus, soil and clothing. High explosives are the most common cause of these wounds. Next in order are bullets and lastly shrapnel.

6. Either class 2, 3 or 4 and wounds of the joints; the types of missiles the same as class 4.

7. Projectile wounds in special regions. It is obviously impossible in a paper of this scope to go into any detailed study of projectiles of special regions. One can only make a few practical suggestions as each region is mentioned. They may be classed as follows:

(a) Head and neck. As regards intracranial projectiles, extraction is necessary whenever the missile is easy of access and when there is an abscess or convulsions, but if the only symptoms in a clean wound are vertigo and chronic headache, the operation is still debatable. Two radiographs are made at right angles and we demonstrate to the radiologist the exact point on the head at which we are going to operate. He assures himself that it is possible to cause the normal ray traversing the projectile to pass through that point. Then he determines exactly its depth in question from the selected point by the localization process which he is accustomed to use.

Projectiles in the orbit and eyeball require great care in operating and should, if possible, be done by one especially trained for that work. To remove very small foreign bodies in the pterygo-maxillary region may necessitate so much operative damage that unless they are causing pain and interfering with function they had better be left alone. It is astonishing how well these small pieces of metal are tolerated in the facial muscles. It is usually easy for the radiologist to localize projectiles in the neck and correspondingly difficulty for the surgeon to remove them in the lower part of the neck because of the many large vessels. Unless a foreign body is easily removed, the operation should be deferred until the surgeon can be prepared to make an extensive dissection and ligations and perhaps reflect the clavicle.

(b) Foreign bodies in the thorax. All intropulmonary projectiles should not be removed unless it is demonstrated that the trouble from their presence should, at least, equal the danger and inevitable damage caused by the operation for their removal. The posterior mediastinum is a region where usually one should not attempt to extract a projectile. The anterior mediastinum is also a dangerous region to attempt to extract a projectile from.

(c) Abdomen. The surgeon's interest should be centered chiefly on the damage done to solid and hollow viscera, rather than on a search for the missile. If while doing the necessary reparative work and cleaning up, the missile is encountered, remove it, but one should avoid losing precious time in a prolonged search.

(d) Projectiles in the internal iliac fossa. In this locality extraction is difficult because the route of access which we may consider surgically the best, may be not easily placed in the path of the normal ray. Sometimes the projectile enters through the buttocks, perforates the iliac bone and stops in the center of the fracture. Again they cross the pelvis and lodge against the iliac bone of the opposite side in the thick psoas and iliac muscle. The best method of attack is the external perineal incision as is used for exposing the iliac vessels.

(e) Projectiles in the spine are of frequent occurrence. Those within the body of the vertebra may be left if they are deeply embedded. Those arrested by the transverse processes should be removed, as they cause great pain and may injure the posterior roots of the nerves. Lam-

inectomy is the procedure for those lodged within the spinal column.

(f) Projectiles in the deep perineum and ischio-rectal region are removed with difficulty unless the surgeon has a fresh wound to deal with and can easily follow the track. It is necessary to have the patient in the lithotomy position and that adds to the problem of the roentgenologist to place a normal ray in that position.

(g) Projectiles in the axilla and subscapular region are also difficult to extract because the scapula acts as an obstacle and may hold up the missile although fractured by its impaction. Here again the problem must be met by the roentgenologist who must extend the arms above the head in taking the lateral and prone exposure.

REMOVAL OF FOREIGN BODIES

It is still a matter of dispute as to whether all foreign bodies should be removed. While there is no controversy over the extraction of those likely to carry active or latent infection or to interfere with function, I believe that the small inert projectiles causing a minimum amount of tissue damage and no loss of function in large fleshy parts, such as the buttocks or thigh, should be left. At any rate, their removal should only be attempted if the damage caused by the operation is going to be less than the inconvenience felt by the patient if the missile is left. Of course, it goes without saying, that this decision should be made after consultation with the x-ray operator.

The operative steps for the removal of foreign bodies may be discussed under the following headings:

1. The treatment of the skin. It is never necessary to remove large areas of skin about a wound to permit free access to the deeper tissues for the skin readily retracts when incised over an injured muscle, and it is also much more resistant to infection. The correct procedure is, after washing and shaving to pick up the skin edge with the forceps and with the scissors cut away about one-third of an inch around the wound only including that part blackened or destroyed by the missile. Next a straight incision is made through the skin for the distance of from 1 to 3 inches beginning at the original opening, extending up and down the limb in the direction of the long axis, if it be the arm or leg. As the skin retracts, it becomes evident that we have a very satisfactory exposure of the muscles. The fascia is next incised in the same direction as the skin. In wounds of the outer side of the thigh the dense fascia lata does not retract as readily as the skin. When this has been nicked across for the distance of an inch or so it gives ample access. Cutting of the fascia does not impair the function of the limb as it readily units. The exception to this method is in superficial transverse wounds of the buttocks and back. Here after excising the wound of entrance one should convert the penetrating wound into a gutter wound severing skin fascia and muscle down to the track from the entrance of the foreign body. This method gives free access to the tracts.

The treatment of the muscle which is now fully exposed not only over the contused portion but also the healthy edge consists in the removal of all blood cot debris and dead muscle until healthy muscle fibers are exposed. Then all bleeding vessels are clamped and it will be found that some of the even large vessels may be plugged by blood clots that partly control bleeding so that the cause of a secondary hemorrhage may remain hidden unless healthy muscle is reached in the operation.

We now approach the foreign body by a method that I am convinced is superior to any that has been tried. By the use of retracting forceps, such as the Ombridanne or Lane, which grasp with a broad bite and do not tear, one is able by catching successive layers of muscle to retract the wound and at the same time climb down hand over hand, so to speak, to the region of the foreign body, readily enabling the operator to pass his finger to the bottom of the wound and steady the foreign body while he removes it with a long handle scoop which follows the finger down to the bottom of the wound. In one British unit I served with where this method was followed, the scoop was of such constant use that we nicknamed it the "surgeon's friend." The Pennington forceps are the only ones I have found in this country that can be put to the same use as the Ombridanne and Lane and not lacerate muscle, and they would be better suited for that purpose if they were olive-pointed instead of square, for in some cases the projectile makes a very small wound in the fascia of deeper muscles, and one can easily lose the track, but with such forceps one can readily catch the edges of a small opening in a deep muscle and thus

follow the track, for that is the *sine qua non* of success in finding foreign bodies.

Probing for a deeply embedded foreign body and an attempt to remove it by forceps not only mutilates tissue unnecessarily, but by so doing one is quite liable to make new tracks and become hopelessly lost in his search. The cultivated tactile sense of the first finger is the best searcher. At times the forceps must be used to remove a jagged piece of metal but never without the finger to palpate all about it and protect the surrounding tissue or vessels from injury.

In such wounds as those caused by high explosive projectiles in which dirt and clothing are found, particularly those that pass within a short distance of the opposite side of the limb, may require counter drainage, so that no blood clots may be allowed to collect in the bottom of the wound and favor infection. A dry, clean wound leaves no media for the development of bacteria.

In the removal of a projectile from the region of a fracture the same steps are followed with the addition that every particle of unattached bone is removed. Where a muscle is peppered with bone dust that portion of the muscle must be excised. It is not merely a matter of drainage nor the partial removal of a few isolated fragments, still less should it be a rapid and indiscriminate scraping of the fractured area bringing out everything that the instrument encounters whether attached or not. It is a free exposure of the whole area of the fracture and enough of the remaining ends of bone to determine their condition. The periosteum is protected and whatever fragments of bone are found attached are carefully arranged to restore, as far as possible, the continuity of the bone. If sharp spiculae are found on the ends of the bone the periosteum is scraped back and the spiculae cut off, as they may do considerable damage to the soft parts and promote sepsis and hemorrhage if the limb is not thoroughly immobilized, particularly during transportation.

The danger lies in the medullary canal. There is a division of opinion as to how far the canal should be exposed. Some maintain that as the ends of the bone are devitalized by the force of the projectile they should be removed. Others that the ends may be left and the canal cleared of debris. In one large fracture hospital on the British front the conservative method was practiced with excellent results.

As the same methods apply to one joint as to another in the removal of foreign bodies it will be easier and more profitable to limit my remarks to the knee joint. Two sets of instruments should be employed, as only a pair of scissors, forceps and scalpel are necessary for the treatment of the skin. The simplicity of the operation is very little interfered with. The skin is treated as before described under penetrating wounds, except that the incisions from the original wounds need not be as long. The excision of the wound area and the longitudinal incisions complete, the operator replaces his gloves with clean ones, resterilizes the wound and vicinity with iodin or 2 per cent. picric acid in methyl alcohol and cuts away the ragged edge of the synovial membrane where the missile has penetrated. The opening is enlarged in the line of the skin incision or transversely as is found best; the foreign body approached, and if found loose removed with scoop and finger as has been described. If it is slightly embedded in the articular surface it is removed and the injury in the bone cleaned. If deeply embedded in the cancellous tissue, so that its presence cannot be felt on the articular surface, its removal is debatable, when it is known that no dirt or clothing has been carried in, for we have seen that these cancellous tissues often tolerate the presence of foreign bodies very well.

When there is a more extensive destruction of the joint, all loose pieces of bone should be carefully removed in such a manner as to retain as much articular surface intact as possible. After the removal of the projectile the joint is washed out with sterile salt solution or 2 per cent. ether and the synovial membrane closed. It matters little what kind of a solution is used in cleaning a joint so long as it is sterile and not too irritating. Drainage is never used unless one wishes to produce adhesions, therefore the capsule of the joint is closed. The skin wound may be sutured or clipped and allowed to remain for a later closing. It is not the purpose nor is it possible in a paper of this length to discuss the later complications in wounds due to foreign bodies but only to touch on the primary treatment in so far only as concerns the removal of the projectile.

SUMMARY

Success in the removal of foreign bodies demands some acquaintance with the ballistics of the missiles to be removed as well as their effect on solid and hollow vicera and tissue at different velocities. The surgeon must work in coördination with the Roentgenologist.

In deciding the extent of surgical exposure necessary to sterilize a wound the surgeon must know the climate and the character of the soil where the man lies at the time he was wounded. He must know anatomy and particularly the danger zones. His judgment must be trained to decide quickly the operability of a case. The trouble resulting from the presence of projectiles in the body must be weighed against the inconvenience or dangers resulting from its extraction. Complete exposure of the entire wound and removal of all dead tissue and detritus is the only way to stop sepsis. The method described above for the removal of foreign bodies has stood the most severe tests and can even be successfully carried out when x-ray apparatus breaks down.

SOME COMPLICATIONS IN CASES OF ACUTE MASTOIDITIS*

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When we have come to a position where we look upon our cases of acute otitis media as being likewise cases of acute mastoiditis, then will we have arrived at a place where we will have less of severe conditions of mastoiditis with which to deal. I, therefore, make a strong appeal for the education, not alone of ourselves, but the general practitioner and the layman in general that a pain in the ear is to be treated with due attention, and expert attention at that.

It has been my experience again and again to meet men in the practice of medicine who assert that they have had no cases of mastoiditis during a given season. Upon questioning a little closer an admission is made that a number of their cases had had some pain in the ear for a few days, then a discharge, but there has been nothing said about it by the patient and as a result they go on to a possible recovery or the development of a chronic suppuration of the ear. The fact is that a large percentage of such cases are sufferers from diminished hearing in one or both ears in various degrees, with noises, dizziness, odorous discharge and possibly are suffering pain.

I am not an enthusiast when it comes to the treatment of cases of impaired hearing. One may have his office walls lined with such cases and so long as procrastination is the part played by those who have these unfortunates in their care, then just so long will this state of affairs obtain. Deafness, aside from inevitable causes, such as injury, septic infection as from mumps, scarlet fever, etc., need not exist as it does today.

Such being the case the medical profession as a whole is causing a just criticism to come to it by reason of the lethargy displayed in its attitude toward ear infections in general.

We have only to study the reports coming from the various cantonments of the army to see the great value of early myringotomy in cases of acute otitis media. In the camps where early myringotomies were practiced there was had a very small percentage of operations for mastoiditis. I grant that a large percentage of acute otitis media cases will recover from their acute symptoms and be seemingly well, wherein nature is left to attend a case of inflammation of the middle ear, but the percentage of impaired hearing and chronic suppurative otitis following is very large.

In my own practice, I deem a case that continues to suppurate after three weeks' time from the onset of the symptoms will not repair kindly if left alone, and so I elect to open and drain all such cases that will submit to the operation of simple mastoidectomy. In ten days to two weeks most of them are healed. The hearing is markedly improved and there is but little evidence left to tell that anything has been done in a surgical way. Some cases are closed in their entirety with drainage through the canal and with an incision of a "T" variety made in the posterior wall as for a radial mastoid closure. This gave me ideal healing of the wound in 8 days' time in one case reported before this section at last year's meeting of the Illinois State Medical Society. Michael clips are used as a general rule and I find much less trouble resulting from their use than I formerly encountered from the use of sutures of silk worm gut. As a rule two are placed at the upper and lower angles of the wound. In a week's time

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others are placed to draw the wound almost together in its entire extent. I have found that by doing this I limit very markedly the time of after-care and dressings. The type of the infection and the question of its extent and virulence, influence me greatly when it comes to the matter of how I am to deal with my mastoid operation when it comes to the question of drainage. A mild infection can very well be handled by placing the drainage through the external canal with the making of the flaps as spoken of before. I think it very important that we extend our operation to such an extent that it will favor this ready healing of the wound. More pains taken at the time of operation will limit greatly the period of healing.

There is one complication of chronic mastoiditis that has my very honest concern, and that is in cases of cholesteatoma. If ever there is a doubt as to the wisdom of performing a radical mastoid operation, then I would say that in cases of chronic suppurative otitis media with cholesteatoma one should not be deterred from doing the operation. It may be, as it was in two special experiences of mine, that the cholesteatoma process had made a complete exenteration of all the cells and simply left a shell of the cortex, so that on the first stroke of the chisel a mushy mass was encountered. In such cases it is well to have proper control of the chisel on the initial attack upon the cortex of the mastoid bone.

There is a complication of mastoiditis that again arouses my intense interest and that is a situation where there is an accompanying sinus thrombosis. My experience has been limited to that of personally dealing with this complication in a series of seven cases. In all but two they were a result of an acute exacerbation of a chronic suppurative process in the mastoid. The symptomatology was so much the same in all the cases as to write their characteristics indelibly upon my mind. I have had other cases that I expected were cases of sinus disease and perhaps were, but they were not the classical cases where one finds the expected clot in the knee of the sinus upon opening it. I firmly believe that in two or three cases where opening was made and free hemorrhage was obtained, that this procedure was responsible for the washing out of a possibly infected thrombus that might have resulted more disastrously or at least have produced later on the classical symptoms of lateral sinus thrombosis in toto. I am a firm believer in doing all that is indicated at one sitting if it is possible. Then get out and remain out so far as surgery is concerned and await with patience the tedious days of recovery that are before me. What I have seen in cases of secondary operation in cases of sinus thrombosis or other mastoid surgery, has convinced me that one should do all that is to be done the first time and rest the case on that piece of work. Nature will do much for these cases of lateral sinus thrombosis and it does not behoove the aural surgeon to become a "Meddlesome Matty," but rather assume an attitude of "watchful expectancy" and then be not too ready to lose control of the situation.

I have seen cases die in two or three days' time after secondary operations and I have seen others just as serious as to conditions go along and recover after running a variable course of chills and fever. These fluctuations in temperature are bound to occur and one should be prepared to expect them. Proper nursing, with good diet, and above all mental rest with plenty of fresh air and sunshine will do a deal of good for these cases.

A condition resulting in a blocking off of the lateral sinus both downward to the bulb and beyond and backward to the neighborhood of the torcular, has been encountered by me where I could not get free bleeding and I had to be content with packing the sinus and finishing the operation; preliminary ligation of the jugular having been done as the first step in the operation together with a radical mastoidectomy. In each of these cases there was a recovery that was encouraging to all concerned.

A recent experience was had with a case of chronic suppurative otitis media wherein I had performed the usual radical mastoid operation and closed with drainage through the prepared external auditory canal. Infection occurred at the tip of the mastoid and extended downward in the sheath of the mastoid muscle. Early removal of the skin sutures seemed not to lessen the process. When it was evident that the pus was burrowing downward and had reached nearly the middle of the neck, I determined upon free drainage and therefore made an opening through the skin and muscle over the lowermost point of

bulging. Two rubber drainage tubes were inserted in the track of dissection caused by the burrowing pus. The original mastoid wound resembled a large head of cauliflower; with exuberant granulations and copious foul smelling discharge. The wound was exposed to the air constantly, a part of the day to the direct rays of the sun, to the therapeutic light and moist dressings of Dakin solution were also used.

This complication I believe was caused by my zeal in closing entirely the line of incision and not including a few strands of silk-worm gut as is my custom in these cases. I believe this is more necessary where there has been some injury done to the fibers of the sterno-cleido muscle. Then again upon the first complaint of pain in the neck one should inspect the wound in order to know if all is going well. By using care in these situations I believe that much trouble may be avoided.

Resultant heavy and depressant scars, as a result of mastoid surgery, are at times unavoidable, but more careful work, not only at the time of the operation, but during the convalescence, will help a great deal in making for cosmetic results which will be appreciated by the patient and will be a source of pride to the surgeon in the years to come. There is a tendency to make our incisions too far back from the attachment of the auricle and thus a great many depressant scars are caused.

Erysipelas has been my *bete noir* in two cases. This complication surely makes times interesting both for the patient and the physician. One is confronted with a chart that is recording the facts of two conditions, one that of the mastoid disease and the other the erysipelas. I have found the best treatment at my hands to limit the spread of erysipelas of the face to the use of 95 per cent phenol carefully applied with an applicator to a small area and this in turn neutralized by the application of alcohol and the use of cooling solutions to be applied upon gauze dressings. It is hard to care for a case of radical mastoid with this complication of erysipelas. The wound most usually breaks down, there is great swelling of the auricle and there is a general mussy field at the site of the operation. Granulations usually get ahead of you within the newly made cavity of the mastoid and you do well not to have to clean these out by a secondary procedure.

One should be prepared for sudden collapse in cases of erysipelas as there does occur a heart deterioration due to the toxins of the infection. It is well therefore to warn the patient not to attempt to be up and about until you have given permission. One experience with a collapse in which my patient all but passed out, causes me to speak of this point.

Another complication, and one simulating erysipelas, is that of perichondritis. One has the redness here as in erysipelas, but there is not the temperature curve nor the chill that attends erysipelas. There is a distinct pain and tenderness. Once only have I encountered this condition. It occurred in a case in which the after-care was done by one not accustomed to the care of a mastoid wound, and I believe the perichondritis was caused by overzealous packing and probing with a consequent spread of infection over the perichondrium of the aural cartilages. This again leads to poor results both in acute and chronic mastoiditis. The main complication, aside from the delay in healing, is the resultant great tendency to atresia in the ear canal.

Personally I have had no experience with the permanent injury of the facial nerve. I have witnessed a partial paralysis of the face after an operation but which cleared up after a few days. I had one case where a paralysis came on two weeks following a simple mastoid operation, and which cleared up after the discharge of a slight amount of pus that had evidently been overlooked and which was in cells not uncovered at the time of the operation and which lay close to the pathway of the facial nerve.

I have witnessed the severance of the facial nerve at the time of operation with immediate cosmetic disaster.

There is one note of warning I wish to sound here and that is in regard to the packing of our mastoid wounds. Cannot we in our teaching and in our minds get away from the idea that we are called upon to pack our wounds in the sense that an ice-cream man packs his ice-cream freezer? I believe that if we observe some caution in this regard we will avoid a lot of complications, such as extension of infection, or at least meningeal irritation or a disturbed inner ear by reason of increased pressure due to tight

and heavy packing. Too many have the idea that they are called upon to "pack" an ear after operation much as we did the old muzzle loader shot gun. In a case of acute mastoiditis we are defeating the first principle of the operation by doing this thing. Why not speak of it as inserting wick drainage.

This leads me to speak of wool yarn xeroform drainage. If we use the wool yarn impregnated with xeroform then we will have a material which to my mind makes the ideal drainage material for mastoid cases. I usually use about twenty-five strands of the yarn in each of three situations. One lot I direct to the upper part of the wound, then another carefully placed to the antrum and the third to the lower angle of the wound. These are readily removed on the fourth or fifth day and new ones inserted. There is no mesh as with gauze, for granulations to form through and their removal is accomplished without so much pain as where layer upon layer of gauze has been wadded and pushed into the wound.

It is in very young children that acute mastoiditis can give one a picture that is hard to study and arrive at a proper diagnosis of the case at hand. Such a case I will relate: also some other cases of interest:

Case: Z. X. Baby girl, two years of age. In January, 1917, the illness occurred and was thought to be an intestinal infection. There was nausea and vomiting, apparent pain in the abdomen, temperature ranging from 101 to 104. Examination of the ears revealed a moist discharge from the right ear. Owing to the other symptoms referable to the intestinal tract it was thought, by consultants, that the main focus of infection was the intestinal tract rather than the ear, and the patient was treated accordingly. There being no apparent improvement in the condition and the discharge from the ear continuing, it was decided that a simple mastoid operation was indicated and this was accordingly done. Infection was present throughout the mastoid cells and the patient very promptly responded to the operation and the convalesence was rapid.

Case, B. Boy, aged 8 years. Had severe pain in both ears which had not been given other care than that of drops to deaden the pain. As a result the membrane in both ears ruptured spontaneously. The discharge then ceased and when I was called in found the boy in a stuperous state. A double mastoid operation was performed but the symptoms of meningeal irritation became more marked and the child died in three days' time. This was a case where a double paracentesis should have been done early. Procrastination caused the disaster.

Case, J. D. B. Six weeks previous to my having seen the patient there had been a pneumonia. There was an infection of the middle ear at the time of the pneumonia but no attention was paid to the condition of the ear other than general care. Six weeks after the onset of the pneumonia he was brought to the hospital by his physician. The process had extended so that there was great bulging over the mastoid process, displacement of the auricle, foul discharge, and great tenderness elicited over the entire mastoid upon making pressure of slight degree. The lung condition had not cleared well and on account of the patient's extreme weakness it was deemed best to operate on the case under scopolamine, morphin and atropine injections and these were given in three doses at 6, 7, and 8 a. m. previous to the operation performed at 9. 1 per cent novocaine was used over the mastoid area.

There was great destruction of bone, and a fistulous tract extended well over into the zygomatic cells. The patient withstood the operation well and I carried on a line of conversation with him during the entire time of the operation as I believe that this helps to support the patient. An uneventful recovery was had and the patient returned to his home in nine days after the operation was done. I cite this case as one of the complications of a pneumonia and draw to your attention the importance of watching for ear complications in the acute infections. An early myringotomy here would have saved the patient all this trouble.

A case of mastoiditis in a young lady 17 years of age. Miss M. Had had the influenza three months previous to the time I saw her. There was a fistulous opening one inch above the right ear as a result of the opening of an abscess that had pointed in that region. Not much thought had been given to the cause of this abscess and the fact that there had been an infection of the middle ear for three months before had been lost sight of. I found upon examination much evidence that the original focus of the infection was the middle ear and determined upon an operation. Owing to the fact that the process had extended over the period of time that it had—three months—I was somewhat at a loss as to whether to do the radical or simple procedure. I determined upon the simple mastoid operation. The incision was extended upward to include the fistulous tract in the temporal muscle, which went well forward over and in front of the auricle. Two weeks following the operation I was confronted one morning with a total paralysis of the right side of the face. In a day or so there was a rather free discharge of pus from the ear canal, and in a few days' time the facial nerve seemed to regain somewhat its function. From then on the improvement was slow but finally was complete.

Another case with some peculiar characteristics was that of V. B., aged 7 years. History of having had a cold in the head for several weeks resulting in infection of the middle ear, with pain in the ear, followed by discharge. There was at times considerable rise in temperature during the ten days previous to the time I saw the child. There was no history of chills, but the temperature had been as high as 105.

Insufflation of some boric powder was made about this time when the discharge ceased for a time and with a consequent rise in temperature and much pain in the ear.

When I first saw the child I found it to be in a rather somnolent or apathetic state. She was very slow in answering questions, was "not herself," so the mother informed me, and spent much of her time in cutting out paper dolls with the aid of the nurse.

I watched the case for another 36 hours. There were no chills and the temperature remained constantly high. The simple mastoid operation was done and wick drainage was instituted. There was no great destruction of bone and but little free pus was encountered. The patient became gradually more and more dull and the temperature remained high.

Three days after the operation the patient was seen in consultation with Dr. Norval H. Pierce and at which time the drainage was removed and new inserted. Supportive treatment was given together with cacodylate of soda to combat the infection. It was suggested that in case the symptoms did not improve in 24 hours that the sinus be uncovered, likewise the floor of the middle fossa to be opened by way of the attic. This was offered but not consented to. In another 48 hours the patient was seen by Dr. Peter Bassoe who made no positive diagnosis of the case at the time he saw the patient. At no time I might say in the interim following the operation could one, from the physical findings have made a diagnosis other than a possible cerebritis. Later on and as a terminal finding, there were stronger points of a general meningitis, but the picture was not clear and distinct of this disease. I have thought more recently of the possibility of our having had in this case a complication of encephalitis of the lethargic type with which to deal, beside the middle ear infection and that it gained access to the cranial cavity through the ear.

In presenting this paper to you I have in mind the presentation of these facts gained from my experience in a considerable number of cases met with in my practice of some fifteen years. Summarizing the points I wish to make I would state it thus:

1. The desirability of getting the early and hearty co-operation of the general medical man in cases of acute mastoiditis.

2. Acquaintance of the public as to the necessity of expert knowledge in the treatment of all ear infections.

3. Necessity of obtaining a clear and succinct history of our cases of mastoiditis.

DISCUSSION
(Abstract)

Dr. Pierce emphasized the fact that it has been proven that mastoid complications stand in direct ratio to the time elapsing between the onset of an otitis media and the time the pus finds egress through the tympanic membrane. If you are not sure that there is sufficient pressure to produce the pain, you had very much better open the tympanic membrane under antiseptic conditions than to delay.

At one time he believed it was good practice to take away the tip, but quite a number of these cases had an infection of the deep tissues of the neck and he now regards it as bad surgery to remove the tip unless you are absolutely compelled to. You very rarely have an invasion of the deep tissues if even a small portion of the tip remains.

The general surgeon should not hesitate to seek the advice of men who are especially skilled in this sphere at a very early date. It is difficult to determine when to operate in these cases of mastoiditis. He is not an advocate of early operation. He does not believe early operation prevents complications. With acute otitis media in a child below ten who has pain over the mastoid, tenderness, some swelling and a temperature of 102 or 103 in the first week, he does not believe that the indications exist for opening the mastoid. We only operate in the first week when there are complications present, and he does not believe that operating in the first week under these conditions prevents complications. He has reason to believe that in New York City, where early operations are performed in these cases, especially on Westerners, that complications are the rule.

Dr. Hayden said that the mastoids are opened very much earlier in New York City than they are here, but not earlier on Westerners than others, however. He does not think the fact that an individual is ten years old should make a condition which requires the postponement of operation when a pus infection is present, when the other symptoms, the temperature of 102 or 103, a tender mastoid with a great deal of pain, etc., indicate the necessity for operation as soon as the drainage through the tympanic membrane seems to be insufficient.

He was glad to hear Dr. Pierce say that the removal of the tip in many cases,—in fact, in the average case, is unnecessary.

In operating on the cholesteatoma cases where the disease has practically dissected out the mastoid cavity, great care should be used, if you are operating with a chisel, so that the very thin cortex may not deceive you and allow your chisel to gouge through into some deeper structure.

He considers the caloric tests are of immense value and regrets that the chair tests, used so extensively in the aviation examinations, have been popularized much more than the caloric tests.

Much care should be taken that the erysipelas is not transferred to others in the hospital, by the wearing of appropriate gowns and gloves. Second, considerable confinement to bed should follow on each erysipelas infection, because a certain number of these cases if allowed to get up too soon will collapse because of heart failure.

In regard to packing, he agrees with what Dr.

Clark had to say, with this exception, that the wound should originally be packed very loosely, but believes that tight packing in the later weeks is the very best plan.

Dr. Beck considered it very fortunate if an operator coming through a service such as Dr. Clark has had escapes facial paralysis, because it does occur, as this specimen shows. It might occur even with the knowledge of anatomy, pathology, and all the necessary equipment. It had been his privilege to give testimony in several cases in court wherein the otologist was being sued for malpractice because he produced a facial paralysis, and he knows only one specimen in which the facial nerve is abnormally located. Therefore, it is necessary that this specimen be carefully drawn and published, because based on that fact has been the verdict that the doctor may not be responsible for the paralysis.

Dr. Hawley stated that he did a radical mastoid on all the specimens he presented and never came anywhere near the nerve at all.

Dr. Beck called attention to one point regarding the curing up of chronic suppuration not related by Dr. Clark, viz., attention to the nose and throat.

He thought the x-ray should be mentioned as an aid in diagnosis of these cases.

He always closes his incision, but puts in a stab wound with a small rubber tube through the antrum. The antrum is thus opened wide for drainage of the middle ear.

He thought that the electrically driven burr is not given the support or trial that it deserves, especially in so-called cirrhosis of the mastoid as it is much easier to use and much less liable to complications.

After you have a facial paralysis, you should always remember that it still can be repaired by a plastic operation.

Dr. Clark (closing): I am glad to have the discussion brought out so fully. My paper was limited, and I did not cover all of the points in mind. It is giving you the situation as observed by me, complications and the cause of those complications. I am glad to know that Dr. Pierce believes as he does regarding my remarks.

I don't remove the tip of the mastoid, but I do get at that last large cell in the tip of the mastoid if possible. Just recently I had a case of necrosis of the tip where I actually lifted it out.

Regarding early operations,—we many times have to operate in a few days because of our complications. I believe that the line of demarkation is established in about three weeks' time, and I believe we get better results by waiting that long.

The matter of packing is quite a problem. That was brought to me quite forcibly recently. I firmly believe there is a tendency to pack our ear cavities too much at the time of operation. I am glad Dr. Beck brought out the point about facial paralysis. I may have cases of facial paralysis in the future, and I want to be on the safe side.

ADRENALIN BY THE MOUTH OR RECTUM

To obviate the necessity of giving adrenalin hypodermically the oral and rectal methods have been tried. Lesne says that adrenalin is not destroyed by pepsin nor pancreatin but that the liver seems to deprive it of some of its toxity so that it has to be given in large doses to obtain effects. Adrenalin is much more toxic when given by the rectum and Lesne infers that the abundance of the anastomoses of the hemorrhoidal veins enables the adrenalin to be carried directly to the vena cava. For this reason it seems preferable to give adrenalin by the recti, rather than by mouth because it gives results with smaller doses. (Soc. med. des hopitaux de Paris, June 11, 1920.)

HYPOGENITALISM AND HYPOPLASIA OF THE TESTICLES

In the Weiner klinische Wochenschrift for 1920 No. 9, Kyrle discusses the frequency of lack of development of the testicles in boys and the lack of development consequent upon it that is felt more or less throughout life. Kyrle insists that this fault entails a constitutional inferiority often persisting throughout life and affecting the general efficiency in a marked way. This Status Hypoplasticus leading to hypogenitalism and constitutional degradation, has for a structural basis an excess of interstitial tissues which more or less compresses the seminal tubules. At the age of puberty these hypoplastic tissues are urged to develop but the interstitial tissue may prevent the expansion of function on the part of the seminal tubules and confer upon the testicle the stigma of functional inferiority. The recognition of this menace at the earliest possible moment is the very best way to correct it. Since the pituitary, thyroid and suprarenals are all stimulants to the functional developments of the tubules, their use, together with preparations of testicles and prostate should offer the best hope of overcoming this fundamental fault.

TOXICITY OF ARSPHENAMIN

One of the factors in influencing the toxicity of arsphenamin and neo-arsphenamin is brought out in a recent report by Roth,[1] who has determined, by experimental methods, that shaking a solution of the drugs for even one minute brings about marked increase in toxicity. The presence of air is necessary to induce the added toxic action, as shaking in the absence of air is not accompanied by any increase of poisonous action. It is pointed out that preparations which are soluble with difficulty are likely to be shaken to aid in hurrying the drug into solution, with the risk that clinical reactions may occur. The paper illustrates strikingly the part that may be played by what may seem relatively insignificant factors in the technic of preparing the solutions of arsenicals of the arsphenamin group for use on patients.—*Jour. A. M. A.*, Oct. 16, 1920.

1. Roth, G. B.: The Effect of Shaking Alkalinized Aqueous Solutions of Arsphenamine and Aqueous Solutions of Neoarsphenamine in the Presence of Air, Pub. Health Rep. 35:2205 (Sept. 17) 1920.

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DECEMBER, 1920

Editorial

A MERRY CHRISTMAS

A MERRY CHRISTMAS IS THE JOURNAL'S BEST WISH TO ITS READERS, ADVERTISERS AND FRIENDS

Christmas time brings to all a common thought, that all are brothers, fellow actors playing their several parts in one small corner of the world's great stage. Each has his part and all work to the same end. Christmas is the one time in the year when all stand on the common foundation. Barriers are more reduced at this festive season than at any other. For a few hours the mists are dissipated, we see face to face, not through an atmosphere surcharged with business pressure, but are tinted with the rainbow rays from the Garden of Friendship and Charity.

What a powerful sermon there is in the old legend, so beautifully versified by Longfellow: At the hour of noon it was customary in the ancient monasteries for the poor to be fed at the gates at the hands of the monks. One day the monk whose turn it was to dispense the charity was deeply engaged in his devotion. The bell rang out the hour of noon, and he knew that the needy, with their gaunt faces, were anxiously waiting for him.

But still he tarried, debating the question, "Should he linger at the gate of heaven or hasten to the gate of earthly suffering?" The temptation to remain on his knees gazing upon the face of his Lord, who stood in vision before him, was strong, but breaking away, under protest, from his prayers he went out to feed the hungry ones; and lo! upon returning what was his delight to see the Master waiting to welcome him, with a smile of commendation sweeter than he had ever worn before, and the words of benediction and of warning, "Hadst thou stayed, I must have gone away."

The physician, more than any other person in the community, knows the needs of the sick and needy and the places where happiness is necessary in order to meet the full enjoyment of the Christmas season by those who are unable to make the necessary provisions for themselves.

Let us go forth, therefore, during the Yuletide season dispensing good cheer, both material and spiritual, as has been the custom of the medical profession throughout the ages.

WISCONSIN HOME-COMING

The State Medical Society of Wisconsin will celebrate its seventy-fifth anniversary by holding a "home-coming" meeting in 1921. The officers are anxious at this time to secure for mailing purposes the names of all former Wisconsin phy

sicians, whether they have practiced there at some time or left Wisconsin to study medicine, practicing elsewhere after graduating.

Former Wisconsin men will confer a favor by sending their names and addresses to Dr. Rock Sleyster, Secretary, Wauwatosa, Wisconsin.

SMALLPOX IS AGAIN SPREADING RAPIDLY OVER THE WORLD

No doubt the war is largely responsible for the increase in smallpox. The war brought together people from all parts of the world. Many came from countries where there was much smallpox. Millions of refugees in the fighting countries of Europe lived under insanitary conditions. Because of the stress of other matters vaccination became very lax and as a result smallpox has increased rapidly.

In the United States, smallpox does not exist where vaccination is rigidly enforced. In our large cities, however, isolated cases are brought in on ships and on railroads especially from our lumber camps, but in recent years we have been free from epidemics because of the small number of unvaccinated people in our midst. In unvaccinated communities many cases occur each year. The Province of Ontario, Canada, this year has suffered from a very serious outbreak, having many thousands of cases, which necessitated the United States authorities declaring a quarantine against all travelers from that Province.

In 1918, the Government records show that there were approximately 70,000 cases of smallpox reported in the United States. There probably were as many more cases that were not reported. Practically all of these cases had never been vaccinated, or had not been vaccinated in ten years.

In the United States we have become very careless towards the dangers from smallpox. Because of previous thorough vaccination of the people of the country we enjoyed many years of relative safety from the disease. Cases were few and mild. Today the disease is rapidly increasing and may change from the mild to the severe type. If we do not rigidly enforce vaccination we may at any time be confronted with conditions such as are now prevailing in many countries of Europe and Asia.

Before the discovery of vaccination smallpox was the most loathsome disease known. In pre-vaccination days it was the usual thing to see people walking through the streets with faces disfigured because of smallpox. Few people reached middle life without having contracted the disease.

With the discovery of vaccination in 1798 conditions changed. Following the discovery, vaccination was generally practiced by all civilized countries. The number of cases of smallpox and the deaths therefrom dropped rapidly. In countries which had compulsory vaccination hardly any cases or deaths from the disease occurred. The important thing to remember is that in vaccination we have a means by which to control smallpox.

WOMEN LIVE LONGER THAN MEN. WHY?

From the great common diseases such as tuberculosis, pneumonia and heart disease more men die than women, not only in the community as a whole, but at any given age or in any given year.

The tiniest girl baby resists the infections and poor food diseases of infancy better than her boy brothers and cousins. Women have a lower death rate from the acute infections than men have. They bear persistent and agonizing pain better, they stand the shock of surgical operations better, more of them survive to old age, and more than twice as many of them become centenarians.

The 1910 United States census report shows that from the very first month of the first year of life and for every successive year and decade following the death rate is higher in boys and men than in girls and women. That more women reach extreme old age than men and that there are in every community nearly 20 per cent more women over seventy-five than there are men.

A study of the millions of surplus females in European countries reveals that, although there were more boy babies born than girl babies, the girls, by their superior toughness and resisting power, showed a lower death rate at every age of life than the boys and forged steadily ahead through each successive decade, until about middle life they outnumber them heavily.

Neither American nor European statistics throw any clear light upon the question of the reason for the superior vitality and viability of women, many explanations are mentioned, first

and most naturally of all, is the explanation that women living a much more guarded and sheltered life and indoor life, are less exposed to accidents, injuries, infections, to say nothing of battle, murder, etc. Statistics confirm this claim to the extent that something like four-fifths of all the victims of industrial and railroad accidents, homicide and criminal violence, are men. More men also die of the great infection, like pneumonia, tuberculosis, rheumatism and typhoid, probably for the reason that the habit of their lives bring them much more frequently into exposure to the germs of these diseases.

However, accidents and homicides are not sufficient explanation for the reason that they comprise only about six or seven per cent of the total mortality, while the difference between the death rate of males and females at all ages under fifty ranges from twelve to twenty-five per cent. While the excess of men over women who fall victims to tuberculosis, typhoid, etc., is only a fraction of one per cent.

That the accident and exposure theory is not a sufficient explanation is shown by the following: The superiority of female vitality over male is greatest and most unmistakable, not merely in the earliest years of life, but in the very earliest months. In fact, it is greatest in the very first year after birth, when the death rate among boy babies is nearly thirty per cent higher than among girl babies.

Then comes the reasonable and valid explanation that the superior longevity of women is due to the much greater moderation and morality of the habits of life, their almost total avoidance of tobacco and alcoholic excess, but even this does not explain, inasmuch as the superior viability of women is as marked in France and Germany where women use alcoholic liquors as an article of daily diet, just as regularly as men do, as it is here in America where only one-fifth of the women take alcohol habitually. It is as notable in prohibition states as in wide-open ones, even in the foreign-born of our population a considerable percentage of whose women use alcohol habitually the superiority of women over men is slightly greater than in our native-born population.

So far we have listed these environmental conditions which seem to be in favor of women, and yet have failed to explain the mystery of their superior survival power when in every other respect they stood equal with men, we have still to take into account the actual handicap which the mere fact of sex imposes upon them. First and most unfavorable of them all is the extraordinary indoor life which the vast majority of women are more or less compelled to lead.

Next comes the risk and fatalities of child birth and of the diseases peculiar to women, including their much greater liability to cancer at certain ages. In fine, we seem to be thrown back upon the conclusions that there is an inborn and inherent difference between the sexes in survival power which, however, has not up to the present been satisfactorily explained.

MANNISH OR WOMANISH—SOONER OR LATER, AND HEAVEN SEND IT SOONER LEST IT COME TOO LATE, THE TRUTH MUST BE CONFRONTED, AND THE CRISIS MET

It Is a Question of Man Doing Man's Work, and Living Man's Life, and Woman Woman's

Students of sociology claim that the American people have gone stark staring crazy on busybodyism. That feminism is in the saddle, that molly-coddleism is in the air, that hypocrisy reigns triumphant and that we are careening in a mad flight for the old lady's home.

Napoleon, the greatest judge of human nature the world has ever known, said: That woman was always more or less than man. She was never man's equal. When woman is more than man, she is supreme in the order of creation. There is nought that can vie with her in the power of self-sacrifice, rival her in the stoicism of suffering, equal her in the strength of love, or approach her in the power of endurance of idealism.

Sweetheart, wife, mother; what words on the earthly plane mean more than these? They represent woman in her supremacy. Man knows, admires and respects womanely women. Unfortunately woman is the one who is forgetting. The craving to be giants of industry, to be cold, rigid masters of the operating table, or shrewd resourceful wizards of the law-court have made her ambitious to be on the same plane with man. There she can never be. As Napoleon said, she is ever more or less than he.

Dr. Arabella Kenealy, L. R. C. F., the famous London woman novelist and writer on eugenic and sociological subjects, in a recent work, "Feminism and Self Extinction" (E. P. Dutton & Co.), written purely from a biological standpoint, says: "Biology recognizes no theology except its own, that of evolution."

That feminism, the extremist—and of late years the predominant—of the woman's movement, is masculinism.

It makes for such training and development in woman, of male characteristics, as shall equip her to compete with the male in every department of life—academic, athletic, professional, political, industrial—and it neither recognizes nor admits in her natural aptitudes different from those of men, and fitting her, accordingly, for different functions than these. It rejects all concessions to her womanhood; even to her mother function. It repudiates all privileges for her. Boldly it demands a fair field only and no favors, equal rights, political and social, identical education and training, identical economic opportunities and avocations, and identical morale, personal and public.

Human evolution and progress have resulted absolutely from an opposite trend, in inherence and development, of the two sexes, as regards life and characteristics, aptitude and avocation. The progressive differentiatons and specializations of vital processes and living forms, whereby human character and faculty have been increasingly advanced to higher powers, reach their most admirable culmination in the complex division of humanity into two genders; each of which is enabled, by way of such complex specialization to promote, to intensify and to dignify its own allotted order of qualities. To oppose and frustrate this natural dispensation, whereby human development is achieved by the two sexes traveling along diametrically opposite lines of ascent, is to nullify all that civilization has secured, and to transform the impulse of Progress into one of Decadence.

Nature, marvelously prescient in all her processes, has provided that the sexes, by being constituted wholly different in body, brain and bent, do not normally come into rivalry and antagonism in the fulfillment of their respective life roles. Their faculties and functions, being complementary and supplementary (and obviously best applied, therefore, in different departments of life and labor), men and women are naturally dependent upon one another in every human relation; a dispensation which engenders reciprocal trust, affection and comradeship.

Feminist doctrine and practice menace these most excellent previsions and provisions of nature by thrusting personal rivalries, economic competition and general conflict of interests between the sexes.

The purpose of her book, Dr. Kenealy declares to be, "to dissuade women from exploiting a world's misfortunes for their own immediate profit, and to reconcile them, in their profounder and more vital interests and in those of the race, to surrender freely all the essentially masculine employments into which mischance has cast them."

The Doctor's arguments are based on biological facts. She attacks effectively the impassioned fallacies of feminism and holds up to the world's eyes the glory of mother and womanhood, and the supreme importance of the home and the training of his children.

The Doctor is evidently a woman with a mind of her own, possessing unusual ability and not led astray by hungering publicists and crazy hybrids. While arguing the intricacies of biological evolution she rises to enthusiastic heights with a ferver unsurpassed. In one place she says:

> The male cult is impressed now at the earliest age. Some of our hapless little girls, in consequence of having been subjected early to strain of masculine drill, hockey, cricket and other rough and strenuous exertion, are more like colts or smaller-sized bullocks in their crude conformation and ungainly movements, as also in their crude mentality and manners, than they are like charming human maids.
>
> Few developments in life are prettier or more engaging than is a natural little girl. The sex of her, with its fair woman-attributes, reveals itself early in children of high organization. Crowned by her curls, in her simple white frock, she is as fresh and dainty, as winsome and elusive as a fairy. Her little woman-soul begins to make for beauty ere ever she can walk. Ere ever she can walk, she moves her limbs in rhythm of the dance. She tries to sing. She stretches out a tiny finger and reverently touches a bright color, a blue ribbon, a gold button, a pink flower on a chintz. Set her in a field, she runs to cram her hands with daisies. She fills, within the House of Life, an exquisite small niche that nothing else can fill.
>
> Yet now they are cropping her fair curls, are exchanging her white frock for masculine knickers.

They are training her soft limbs and exquisite elastic movements to the hard and rigid action of the soldiers' drill and march, are teaching her to stride her pony that once she sat as prettily and lightly as a bird; are making a hard, boisterous tom-boy of her, with lusty, hairy limbs and uncouth manners; perverting all her natural highly-differentiated delicate attributes and graces to clumsy lower-grade form and activities.

They have robbed her of her doll, whose helplessness and wax perfection fostered sentiments of worship, tenderness and ministry in her. They have given her a whipping-top, which unlike the boy, who pleasures in the skill and mechanism of its handling, she lashes with contorted features and neurotic spitefulness. With characteristic scorn of physical disability, feminism contemns old age as disease or degeneracy, a weakness to be combated with latter-day strenuousness, cloaked by a counterfeit youthfulness, forced exertions (even games) simulated youthful zests and gaieties. Beyond all things, women are exhorted not to allow themselves to "grow old" as their grandmothers did, sitting, comely and tranquil and wise, at their quiet firesides.

Yet the truth is, age is a beautiful phase; in its way as natural, as healthful and as beautiful as are any of the younger seasons. Calm and stately as the snows of nature's winter, as nature's winter shows us, old age does not presage death, because there is no death. . . . Compare such serene-faced, dignified age, cause to all reverence and tenderness, for the mystery and pathos of its wise and tranquil resignation—compare such with the restless, harried, malcontent of modern counsels.

Another excellent paragraph reads:

Feminism, having thrust such disastrous liberty on creatures as eager to grasp as they are unfitted to cope with the dangers thereof, is striving now, by way of women-patrols and police-women, to stem the evil with one hand, while with the other, it continues to open the flood-gates still wider. The only way to stem the evil is to stem it at its source. The home, with the vigilant supervision and guidance of a mother whose duty is publicly recognized and her authority strengthened thereby, whose time and faculties are devoted mainly to the making of home and to the safeguarding and disciplining of the young creatures she has brought into existence, is environment and shelter as indispensable to the impressionable youth of both sexes—but more particularly to the impressionable youth of one, as it is for the rearing of infancy and childhood. Such home-influences reinforced by the strong hand of a father who likewise recognizes his parental responsibilities, are the first of all the rights that matter for young womanhood.

Here is another paragraph of equal value:

The home and the family are the nursery of civic as they are of racial progress. We regard it as a proof of civilization that Law-Courts for Children have been instituted. Yet what a blot it is, in truth, upon both parentage and parenthood that, in our day of enlightment, such should have become necessary. So have mother influence and maternal sense of responsibility declined, however, that mothers on all sides openly confess their utter lack of power to control boys and girls just in their 'teens.

An excellent paragraph in Doctor Kenealy's book reads:

Many of our young women have become so desexed and masculinized, indeed, and the neuter state so patient in them, that the individual is described (unkindly) no longer as "she" but as "it."

Another paragraph reads:

Women's influence, like that of religion, is most potent when it is indirect and inspirational.

And finally she exclaims in alarm:

Sooner or later, and heaven send it sooner lest it come too late, the truth must be confronted and the crisis met. The further the feminism now threatening our downfall secures footing, however, and more and more diverts the Nation's life resources into merely economic channels, more and more squanders them in abnormal ambitions and output, the more deeply rooted and more desperate will have become the cancer of our national decadence. And incalculably the more difficult and dangerous will be the task of its eradication.

ENDOCRINE DISHARMONY CAUSES THEORISTS, REFORMERS AND UPLIFTERS

Dr. Horace M. Brown of Milwaukee, Wisconsin, the greatest authority in the world on Endocrines and their relation to body function, before the Tri-State District Medical Association, October, 1920, at Waterloo, Iowa, said:

Compulsion (force) as a means of maintenance of the social order is always destructive and its action upon cerebration, through disturbance of endocrino-cerebral balance, destroys its own object by increasing the error of balance; or in other words, by bringing discord into the harmonious functioning of the cerebrum and the endocrines.

Thus the vicious circle completes itself and we find ourselves where we started and without a solution of the problem, except that the law of "experience of the ages" still holds, and in its presence theorists, reformers, uplifters, derailed-menopausics and those who believe that they can make man good by making laws; if their endocrino-cerebral function were in harmonious attunement would cease their ill-considered maunderings, and perhaps retire like Tityrus to rest themselves "beneath the shade of some um-

brageous beech," and leave the world to its solution of its problems by the slow process of the attrition of time and by the accumulation of experience.

CHAUFFEUR WAGE VS. PHYSIC—WHY THE MEDICAL PROFESSION SHOULD ORGANIZE

The following is taken from the payroll of the Municipal Contagious Disease Hospital:

Assistant Medical Superintendent, $150.00 (with board and lodging).

House Physicians, $120.00 (with board and lodging).

Ambulance Surgeons, $120.00 (with one meal).

Bacteriologist (not a medical man), $175.00 (with board and lodging).

Electrician, $225.00.

Ambulance Driver, $150.00 (with one meal).

Ambulance Surgeons are on duty from 8 a. m. to 4:30 p. m. seven days per week.

Above are salaries per month.

The ambulance driver, after a four weeks' course in automobile mechanics and passing a state examination, draws more on the municipal payroll than the physician who spends four years in high school, two years in college, four years in medical school and another year as an interne.

The City of Chicago evidently values the care of its automobiles at a higher rate than the care of the sick who come under the charge of ambulance surgeons.

CONTRACT PRACTICE COMMITTEE,
CHICAGO MEDICAL SOCIETY,
Thomas P. Foley, Chairman.

TEACHING MEDICINE FIFTY YEARS AGO IN ILLINOIS A MARKED CONTRAST TO PRESENT DAY METHODS

Dr. Norman Bridge in his latest work, "The Marching Years" (which we reviewed exhaustively in our October number), Chapter IX, gives reminiscences of early teaching experience in Chicago that we are confident will be of interest to many Illinoisans. We reproduce the chapter in full.

I began teaching medical students the fall after my graduation, having been appointed Assistant Demonstrator of Anatomy in my *Alma Mater*. Dr. Woodworth was the Demonstrator, but he hated the business of teaching in the anatomy room—he had asked for my appointment—and I did all that work, none too well, certainly, throughout the college year of 1868-9. The study and attention necessary to this, as well as the doing of it, were of great advantage to me, and the work itself was fascinating. It was during this season that my search for dissecting material occurred, which for a time strained my relations with my late friend Dr. Parkes (as described in this Journal last month).

At the end of the year Dr. Woodworth resigned, and Dr. Thos. Bond was appointed in his place. In that period of my career my ambitions were large. I had hoped to succeed Dr. Woodworth as Demonstrator, but the college authorities evidently knew some of my limitations, and probably felt that in professional Chicago I was a good deal of an experiment—which was true. Bond was a good fellow, older by some years than I, both in age and in the profession; was highly connected socially; was married and becoming established in practice. A year or two later I was a candidate for the chair of Materia Medica that was then vacant, and suffered some wholesome grief when it went to another. But the other was my classmate and lifelong friend, Wm. E. Quine, a gentleman of refinement and character, and an orator born. He has had an enviable career as a teacher and physician. He always preferred to lecture didactically, which has seemed curious to me, who have from the beginning preferred the clinical side. No professional brother of his was more glad than I of his early promotion, as none knew better his sterling qualities.

My own disappointments did me good; they taught me that probably I was not yet fit for anything better. There was a new Professor of Anatomy, Dr. Boyd, who had come up from Quincy, Illinois, and he made me his assistant, to help him in dissections and to quiz the class in anatomy. This was a most important work for me; for it led to the discovery of the great educational value and spur to thought, of an intense searching quiz of a class of students; it confirmed in me then a habit of quizzing that continued through all my teaching years, often to the worry but sure benefit of all my students; and usually to my satisfaction—though sometimes to my grief.

In the following year, 1870, Dr. Mary Thompson, who had a little hospital for women and children on the North Side, together with numerous friends of hers—both men and women—determined to establish a Woman's Medical College, since women were not admitted to either of the existing colleges. I was asked to take a chair in its faculty, and selected that of pathology. This relation continued three years with pleasure on my part and apparent satisfaction to the institution. The most attentive, business-like and serious minded medical students I ever taught were women. Women did not then, nor have they since, gone into medicine except with serious purpose.

Men enter it with all shades of purpose, from serious to the most trivial.

In 1872 Rush College decided to have a reorganized and enlarged spring faculty and a full course of instruction for about three months, beginning soon after the Commencement, early in the spring of each year. A less formidable spring course had been going on for some time. I was asked to apply for the chair of the Practice of Medicine, and was told that it would be necessary to lecture competitively before the faculty and students. This I did, and was awarded the place. There was only one other competitor, and to satisfy the faculty we had to lecture two evenings.* I gave the address† at the opening of the next spring course of lectures in the temporary college building "under the sidewalk," and there all our lectures were given until the summer of 1876, inclusive, continuing afterward in the new college building, which was first occupied in the fall of that year.

Thus began an association that has continued to the hour these lines are penned; an association that has brought me into close personal relations with some of the choicest souls in all the world, and has endowed my life with professional, social and spiritual joys that cannot be measured in words.

In 1877 my weekly clinic on general medicine was begun and continued as a permanent institution. I began to teach in the regular winter term in 1882, and taught successively and variously hygiene, pathology, clinical medicine, physical diagnosis and general medicine.‡

From 1873 to 1905, inclusively, I lectured every year except in 1891-2, when I was expatriated to California with tuberculosis. Partially recovered, I came back in the autumn of 1893 and lectured a few weeks. This service was thereafter repeated every fall up to and including 1905. In the beginning of 1906, business interests in Mexico were engrossing my attention very much—interests that I was unwilling to neglect. For that reason the lecturing in the college was not resumed, but my interest in the institution never ceased or lessened.

In 1900 I tendered my resignation as a professor in the college. This step had been long contemplated, as some of my colleagues knew, and had been delayed at their request. But the college had been for two years in affiliation with the University of Chicago, and university methods and smaller classes at lectures had been introduced. The arrangement was apparently working well, the faculty had been augmented and a larger career was ahead for the institution. It seemed to me that I could with good taste and propriety drop out; so I wrote my letter of resignation without consulting anybody.

The college accepted my resignation by making me Emeritus Professor; and my name was kept on the list with a request to lecture on any subject at any time, as long as I cared to.

It is a safe statement that of all the kinds of work I have ever done, teaching medicine has been the most enjoyable. The didactic teaching was pleasant, but not so much so as the clinical. I would rather give a clinic on medicine—a study of a disease with a case of it before us—to a class of critical, inquiring students, present by their own desire, than do any other piece of work in all my experience.

My habit in didactic lecturing was to spend the first ten minutes of the hour in quizzing a few students on the subject of a previous lecture, making records of their answers, to be used in my final reckoning with them. More or less quizzing was also done regularly in the clinics. It was early discovered that I had an unenviable reputation among the students for severity in these quizzes. The quizzing was not meant to be severe, but only helpful in the process of learning, and especially in the art of close and critical observation. It is, however, true that, when a student's answer needed explanation o elaboration (as evidence that he had not guessed it) he was allowed, by a few kindly questions, to make his case solid.

But the reputation was unpleasant, and would have been more so if it had not been true that this sort of quizzing is one of the most effective methods of teaching, and if, as the years came along, a lot of practicing graduates had not come back to say how much advantage they were conscious of having derived from the quizzing they had received from me while in the college. In the presence of a large class of his fellows, it is small wonder the youth thus interrogated was often embarrassed, especially if he thought he was being cornered. One student who had been dismayed by such an experience said in despair to a seat neighbor: "That man would quiz the devil on sulphur, and corner him."

Nor was my reputation any better in final written examinations. The questions seemed to the students to be very difficult, but they were not. There were never any "catch questions," which are nearly always unfair; but some of the usual half dozen were so framed as to test the capacity of the student to think and reason—they could not be answered by simple remembering. Once a notice appeared on the hall blackboard to the effect that I would give at a certain hour the next day a final examination to the senior class. An hour after the exercise was over a student had written under the notice: "He did give it," underscoring the "did." An hour later, another and less reverent student had written under all, in red chalk, "Yes, you are damned right, he did."

This teaching had to be done in the midst of the exacting demands of a general practice, and sometimes under pressure of official duties for the city of Chicago, which lasted seven years, three on the School

* December 26 and 30, 1872.

† March 5, 1873.

‡ My titles in Rush College were successively: "Lecturer on the Theory and Principles of Medicine" (1873); "Lecturer on the Principles and Practice of Medicine" (1876); "Adjunct Professor of the Principles and Practice of Medicine" (1881); "Professor of Hygiene and Adjunct." etc. (1882); Professor of Pathology and Adjunct," etc. (1886); "Professor of Clinical Medicine and Physical Diagnosis" (1889); "Professor of Medicine" (1898) (this last was after the affiliation with the University of Chicago); and "Emeritus Professor of Medicine" (1900) (this last after I tried to retire from the college and was not allowed to).

Board and four on the Board of Election Commissioners.

My practice in the early years was extremely small, but was during many of the later years a large one, much of it for the poor, who could pay only small fees or none at all. I once had a colleague who boasted that he never had any non-paying patients on his list —which I told the man he ought to be ashamed to say, if it were true. For every normal-hearted physician unavoidably has people on his list who cannot pay at the time of the services, or ever. My list of such cases was always large. Many of them were people who had employed and paid me in my days of small things, and whom I would serve, pay or no pay; many were struggling people of refinement and worth, caught by material misfortunes, whom it was always a pleasure to serve. For several years many hours of my time each week were given to the poor in the Central Free Dispensary—usually in the presence of students, for whom it was a continuing clinic. Likewise for many years a large amount of time was given to hospital work in the Cook County and the Presbyterian hospitals. This labor was always a pleasure, and valuable for teaching, as well as for equipment professionally—yet it took nervous energy as well as time.

The methods of teaching doctors in the olden time, half a century or more ago, were mostly by didactic lectures nearly an hour long, three or four each day in close succession. There was very little in the way of illustration, things shown or done to aid the memory, except in the chemical laboratory and the anatomy room. It was a monotonous business, tiresome to body and mind—a memory-goading process.*

Two courses of lectures of three or four months each (usually the same lectures repeated) were required for graduation, and the student had to present a letter from a practitioner of medicine, presumably in good standing, to the effect that he had been studying medicine at least three years prior to his graduation. (Sometimes students gave letters from men who themselves had never been graduated from even one of the cheap schools.) Few or no questions were asked of the student, on admission, as to his general education, whether he had attended school, high school or college—or whether he could even read and write. Most of the medical schools were called "proprietary," since their trustees were senior members of the faculty, and any profits derived from fees were divided among the latter.

In many of the medical colleges, so-called, the teaching was less practical than the teaching of trades to apprentices, for these were at least required not only to handle the tools of their craft, but to become by practice expert with them.

As the years came along, clinical studies, clinics in the colleges, and laboratory exercises of many sorts gradually came into vogue in response to a growing public sentiment, a belief, both in the profession and out of it, that medical education averaged altogether too low. In response to the same influence many of the proprietary schools were gradually driven into union with universities or with other weak colleges, to make stronger ones, and so afford more laboratories and clinical advantages; and more and much better teaching. Many of the weaker schools ceased to exist.

More serious conditions began to be required for admission to medical schools, easy conditions at first, which progressively grew more severe until some college work, largely along scientific lines (usually at least two years of it), came finally to be a fixed requirement in every first-class school in the country.

This progress in medical teaching was hastened by the legislatures of many of the states, which passed laws fixing conditions of admission to practice, some states making them extremely severe. As a result of all this progress, medical incompetence and quackery have been much reduced—but only reduced, not abolished. Perhaps they never can be wholly done away with, owing to the mental tendency on the part of many simple minds to believe in the things that quacks promise, and to think that the prosecution of a professional mountebank is unfair.

Through all the years of improvement in medical teaching, the credit for the progress made is largely due to the teachers themselves—especially the junior teachers, who were more often fired with the progressive spirit—aided by educators in general; they together aroused a wholesome public sentiment that has helped. The progress has been more or less of a fight, because of the several sects of so-called healers who have had little difficulty in convincing some sections of the public, and always some legislators, that the true art of healing comes by intuition to certain persons, or comes direct from God, and not through learning, patient investigation and experience. But there has been some advantage in such opposition, for it has spurred on scientific research and thoroughness to a point that, half a century ago, had not entered the vision of reformers as among the possibilities. This progress has been a greater and more beneficent boon to the people as a whole than they know, or can well know, for it has done two things that are the chief purpose and duty of the profession: It has made attacks of sickness less painful and long; and it has lengthened the average span of human life.

A volume of amusing history could be related of the old time medical schools, and some of it would seem the more curious to those doctors who have no memory of it themselves. Some of the story shows the unsophistication, the mental and spiritual innocence, of the students; some of it reveals their acumen, for they were not fools, if they did come mostly from the farms and shops, with little preliminary schooling; and they sometimes revealed a shrewdness that surprised the classicists.

The experiences of students then were altogether different from those of today. There was a dearth of practical things in the teaching; things for the learners to do in the learning. There was some slight

* Some recent experimental studies have shown that only ten per cent of things taught by words are remembered, while of things perceived by the eye thirty per cent are remembered.

compensation in the differing personalities, ways of saying and doing things, among the several members of the faculty. In the lectures they frequently contradicted each other, teaching somewhat conflicting doctrines, to the confusion of students who had read so little and heard so little of men's opinions on debatable questions as not to know that in medicine there must be many such questions.

The students metaphorically dissected each teacher in his ways, opinions and character. This was a diversion from the monotony of lectures, and it helped. It was especially the case if there was something peculiar about the teacher or his teaching; if he was elegant or awkward, or used good, bad or bizarre language (only many of the students were unable to distinguish between good and bizarre language); or if he told stories and jokes to relieve the tedium of his talk, as one wise and venerable professor in the old Rush College always did.

If there was a large class of young men crowded together in a steep amphitheatre, men who met there day after day and were not dominated by some restraining influence, and if they were kept waiting long for the lecturer to appear, they often broke into song. The favorite was "John Brown's Body," in the familiar tune to which the "Battle Hymn of the Republic" is usually sung. When sung by two hundred or more men it was rather grand music, and it always filled the time, and worked off some surplus energy. But if nobody started the singing, perhaps a couple of fellows sitting back of the first or second row of seats might reach down in front of them and lay hold of some selected victim and lift him bodily, and pass him up to those sitting back of them, who in turn would pass him to others, till he might land on the topmost seat, if he were not specially vigorous or an expert wriggler or scrapper. Sometimes his clothing would be badly torn, and some seats might be broken, but that would not matter to the participants. However normally demure and decorous the men on the successive rows of seats might be, there were nearly always some who could not resist taking a part in the scrimmage the moment it began. The performance was familiarly known as *passing up*.

These things often happened in certain schools, and almost never in others where the conditions were apparently the same, and the reason was not easy to tell. The explanation of them must probably be found in several circumstances. One is the pent-up energy of a lot of young men, sitting still and listening almost continuously for hours each day, and having too little exercise. Another is the lack of things to do by themselves that they must record and be judged by, like work in a laboratory or a hospital. Something must be charged to numbers—large groups take impulsive tangents more often than small ones. Aggravation at a tardy lecturer, and the demoralizing effect on some of idleness, even of short duration, count for something; so may also the presence of a few fellows with no bad motives, but with a spirit of pure mischief, and maybe an itching to display their daring among their comrades, as egotistic children often do. The very fashion in mischief is a temptation to start some of it, like the fashions in clothes and slang. Dissatisfaction with the school might lead certain minds to do mischief as a protest, while pure love of adventure is always present and must account for a lot of fireworks, first and last.

Some critics insist that lack of preliminary education and want of essential refinement of character must be mostly responsible for the explosions, but this theory is untenable. Hazings and other forms of college lawlessness have occurred in many lands and times, among educated men from the best families rather oftener than otherwise. Indeed, the boys with little schooling, who are poor and struggling for an education, are rather freer from such dangers than their more (or less) fortunate fellows.

We know with more certainty of influences that conspire to orderliness and decorum in college activities, and to the highest efficiency in the business of learning. Some of these are small classes, relative intimacy and nearness of teachers, the presence of women, hard and diversified work, and some outdoor exercise each day. Rush College in the early days had some of the troubles referred to, but never since the affiliation with the University of Chicago, with severer conditions of admission, university methods, small classes, and more intensive work for the students.

To the young lecturer on medicine in a former regime there were many perplexities beside turmoils in his classes. Usually he did not study his own psychology, and he nearly always failed to grasp the psychology of his students. He misjudged the capacity for memory on the part of the men who listened to him. So he usually loaded his discourse with a flood of details that choked the memory of the students and left them with a jumble of indistinct impressions—to grow afterward more indistinct.

In his clarifying maturity he came to know that if a lecture could impress half a dozen points of real value, and if half of them could be remembered, and become a basis for after-reasoning, it was a successful lecture—and that it had no further virtue of being interesting.

NOTE—In our November number we published Chapter VIII, "Getting a Medical Education in Illinois Fifty Years Ago." This chapter proved so popular that we reproduce Chapter IX in this issue.

"The Marching Years," by Norman Bridge, M. D., A. M., LL.D., is published by Duffield & Company, New York. Price $2.50.

THE PERSONAL ELEMENT AN ESSENTIAL FACTOR IN THE SUCCESSFUL TREATMENT OF PATIENTS

The following is extracted from some remarks by Dr. Arthur Dean Bevan at a conference on Medical Education: "A few weeks ago a man came into my office and said he had been to a great clinic where they practice group medicine in the best possible way. He was an intelligent man. He had been put through

a machine. He said: 'Doctor, I went there, and I was most carefully examined for a week. They x-rayed my teeth; they x-rayed my chest, my stomach and my intestines. They made an examination of my blood; they took what they called a Wassermann test; they made an examination of my feces and of my urine. They made an exhaustive and thorough examination, and when they got through they said: 'Well, Mr. So and So, we cannot find anything wrong with you. You go back home; you are run down; you need to eat more and not work quite so hard.' This man was excited; he pulled out his handkerchief and with a trembling hand wiped the perspiration from his forehead, and remarked: 'Doctor, I have lost fifty pounds, and I am so sick that I cannot do my work.' This man had been through a machine and did not have the benefit of the personal element in medicine. He had a marked exophthalmic goiter without any visable goiter. The diagnosis was made in an instant by a clinician who had personal control of the situation, the minute the man took his handkerchief out of his pocket and wiped his forehead, and said he had lost fifty pounds and could not do his work, the diagnosis was clear. It is in personal element that the art of medicine comes and is something we cannot get away from. Again medicine as a profession in this country is a means whereby about 150,000 men earn a livelihood. Our problem is not a simple one, but I think will be worked out."—*Jour. Kansas Medical Society.*

WHERE THE RUBBER GLOVE IS BEHIND THE TIMES

Dr. Robert T. Morris of New York, before the American Association of Obstetricians, Gynecologists and Abdominal Surgeons at Atlantic City, N. J., September 20-22, 1920, said that discarding the rubber glove represented one of the best advances of surgery in general. It interfered with the sense of touch in some kinds of work. In abdominal work the rubber glove was not necessary if the hands of the operator were otherwise well prepared. It made a longer incision necessary, and consequently was not in accordance with the principles of modern surgery.

Dr. Herman E. Hayd, of Buffalo, N. Y., said he thought that Dr. Morris had done the profession a great service in teaching them to do surgery through small incisions and to develop tactile sense. He was rather surprised that a man with a judicial mind like Dr. Morris's should have put before the association so strongly the results of the work of Kennedy without the use of rubber gloves. It was hard for him to believe that in ninety-nine per cent of the cases in which other surgeons who wore gloves had operated there were adhesions, while those operators who did not wear gloves only had seven per cent adhesions. To him this was ridiculous. Out of one hundred cases, probably sixty to seventy-five per cent were the simplest kind of operations and would have taken but a short time to accomplish. He did not believe it was possible that such results could take place in the hands of ninety-nine men with adhesions and Dr. Kennedy had only seven per cent adhesions from operating without gloves.

Dr. Charles L. Bonifield, of Cincinnati, Ohio, could not believe that the rubber glove in and of itself caused adhesions. He could conceive of a man with rubber gloves being rough, and a man without rubber gloves scratching tissues with his finger nails. One thing that induced him at an early age to wear rubber gloves was the fact that his finger nails were very hard to keep clean, and he seldom knew whether he had them clean or not, and he felt it was better to cover them up with something that he could boil. While rubber gloves might impair tactile sense a little, still they should be used in operating.

Dr. Gordon K. Dickinson, of Jersey City, stated that Dr. Morris wanted to standardize surgery by discarding gloves. Why were gloves worn? To prevent infection. Why was infection likely? If one went the rounds of the clinics one would see the most incongruous things perpetrated, such as putting on soap and washing it off again. If one wanted to get his hands free from germs he must not wash the soap off and must not scrape it off. It did not do any good. Put soap on, rub it in, and one would kill the germs, and there was no germicide more potent than potassium soap.

Dr. John W. Keefe, of Providence, R. I., said that a surgeon's tactile sense was not as acute with a rubber glove on as it was without it. When rubber gloves first came into use he used them in nearly all cases in which he operated. Now and then he slipped the rubber gloves off because he thought he could feel better without them. At one time he was in the habit of going to see Dr. McBurney, who was one of the greatest surgeons America had ever produced. He told him about his difficulty, and he said that was exactly where the mistake was made. The rubber gloves should be kept on in a difficult case and the fingers ought to be educated as to how differently things felt with the gloves on. He went home and had practised that ever since.

Dr. James N. West, of New York, said that Dr. Morris had spoken of the great tendency to standardization, with the result that it stifled originality. There were times when the surgeon could operate to greater advantage without the use of gloves than with them, particularly if he was very careful in the preparation of his hands.

Dr. Abraham J. Rongy, of New York, said in a large city like New York it was not only unsafe to operate without gloves, but unsafe to examine patients in the office without gloves, and as a measure of protection the use of gloves was one of the best things for the physician.—*New York Medical Journal*, November 6, 1920.

PRIVATE PRACTICE IN GERMANY IS A THING OF THE PAST, THE STATE HAS VIRTUALLY ASSUMED CONTROL OF THE PRACTICE OF MEDICINE

It is interesting to note that the German papers are commenting on the attitude of the medical profession in America towards Compulsory Health Insurance.

The medical clinic of Berlin comments on the matter editorially and apparently admits that the system in vogue in Germany has practically reduced to State servitude a former free and independent profession.

It further remarked that negotiations for the renewal of contracts were abruptly broken off when fees of twelve marks for house visits and eight marks for office calls were suggested. At the present depreciated value of the mark, this represents about twenty-five and seventeen cents respectively in American money, and laying aside all questions of the present condition of foreign exchange and the purchasing power of the mark, the real significance of this report lies in the fact that private practice in Germany has become almost a thing of the past, and that the State has virtually assumed control of the practice of medicine. This is precisely the situation that is foreseen and dreaded by physicians in this country, who realize that control by the State of the conditions of practice, means complete loss of independent action. Once the power of assigning a physician's field of activity is placed in the hands of the State and the subsequent steps to compel socialization are easy. How this problem is to be met by American Physicians is by no means clear. One attempt at solution may be recognized in the decision of the New York Police Department to collect funds to both equip and endow a hospital in Brooklyn for policemen and their dependents, a group estimated at some 60,000 persons. The plan suggested calls for a fund of $5,000,000, of which approximately a half shall be used for endowment and maintenance. No announcement has yet been made as to how the institution shall be manned, nor what the approximate cost of the individual for treatment is likely to be. The idea of voluntary co-operation, which lies at the bottom of this plan, and which could be developed by utilizing the already salaried surgeons of the Police Department, thereby centralizing their work and giving them added efficiency and broader opportunity is worth consideration, as a plan which might be expanded to cover groups of citizens whose incomes are at present inadequate to command the better sort of medical care but whose importance to the community makes it essential that it should be placed within their reach. The scheme of voluntary co-operation is free from many of the drawbacks inherent in plans that are initiated and controlled by the State, and it may be that a comprehensive plan for voluntary enrollment of groups of citizens under proper financial conditions could be so arranged as to bring about a readjustment of the present field of medical practice without interfering with the opportunities of the physician for normal growth that is inherent in State Socialism.

The objection of thinking physicians to the plans so far brought forward arises from their certain knowledge of two unavoidable results—the fact that the beneficiaries would not receive the improved medical care that is promised and that physicians themselves would tend to sink into mediocrity.—H. G. W., in *Jour. M. S., M. S.*, Nov., 1920.

STATE MEDICINE NOT IMPOSSIBLE IN ILLINOIS

Dr. Hugo C. Schroeder, M. D., in *The Madison County Doctor*, says:

Have you recovered from the wallop handed you by the Constitutional Convention? When your Proposal No. 300 came up for action, it was stated on the floor of the convention that this proposition had no backing. This, in spite of the fact that the measure had the backing of the county societies, the state society, and the fact that every doctor in the state was pledged to work for it. Believe me, it was some wallop! Fifty-seven to 9. Think of it. Isn't it about time we wake up? The editor of the *Clinique* says:

"Much is being said and written these days relative to state medicine. Without exception, state medicine is condemned by the busy physician but is condoned, encouraged, and exploited by the swivel-chair doctor, the medical uplifter, and the near doctor and hanger-on of the profession. In other words, the physician who actually lives by his profession, and his own efforts dislikes the idea of state control which he feels would limit his field of action, hamper his independence, and curtail his individuality, while the other type of so-called doctor is looking for a chance to get both feet into the public feed trough and fatten up at public expense."

A number of doctors have remarked, "Why, there's no possible chance of putting over state medicine in Illinois." Let us see if there isn't.

When the Harrison Law was put over we didn't oppose it so that any one could notice it. When we were each taxed $1.00 a year to administer this law—we paid. When the tax was raised to $3.00—we paid.

When the Volstead Act was made a part of the law of the land more restrictions were placed on the doctors. Were we consulted? Not that I know of. But the law is there and must be obeyed.

You report your infectious disease, your cases of tuberculosis, your venereal cases. The State Department has ruled that you must do so under penalty of fine or imprisonment, or both. According to the *Illinois Journal* the law has been enforced.

You now have free Venereal Clinics in Illinois under the management of the State Department of Health. You have free Tuberculosis Clinics under the management of the State Department of Health. You

have a free clinic for victims of Infantile Paralysis with 1,600 patients in charge of a physician who travels over the state and looks after these patients. You have a free laboratory under the State Department of Health, which furnishes you free of charge examinations, diagnosis and antitoxin. You have your Community Nurse.

The next proposed step is a paid all time Health Officer for each county and for each city of over 15,000. What more remains but for the State to tell you which patient you must look after, and hand you a monthly check? You say State Medicine is an impossibility in Illinois?

Would it make any difference one way or the other calling attention to the trend of the times? Look at the vote of 57 to 9 and answer for yourselves.

REFORMERS WHO DON'T REFORM

The Usual Thing

"I am in great distress," stated J. Fuller Gloom. "I have a griping pain in my stomach and a racking ache in my head. My tongue is covered with gray fuzz, and whatever I eat disagrees with me outrageously."

"You should consult Dr. Smart. I am sure he can do something for you."

"No doubt, but I am not as old-fashioned as all that. It used to be the thing to go to a physician, and while he was endeavoring to bring you out of the kinks, bore your friends, acquaintances and even total strangers with all the details of your ailment and minute descriptions of your every symptom. But nowadays when a man gets the stomach-ache he marches in parades, secures a hall at somebody else's expense, denounces everything and atempts to reform everybody but himself."—*Judge.*

UNLAWFUL PRACTICE OF MEDICINE

The Court of Criminal Appeals of Texas, in affirming a judgment of conviction of defendant Black of unlawfully practicing medicine, for which he was fined $250 and sentenced to one day in jail, says that it was entirely undisputed that he had and maintained offices where he treated any and all persons who might apply to him for various and sundry disorders and diseases, for compensation; and that he had not registered with the district clerk of the county, as required by the provisions of Chapter 6, Title 12, of Vernon's Penal Code. That act, passed by the legislature in 1907, makes it unlawful for any one to practice medicine on human beings in Texas, without registering with the district clerk in the manner and form provided by said act. By the terms of Article 755 of said chapter, what is meant by "practicing medicine," within the proscription of said statute, is defined. Subdivision 2 of that article is: "(2) Or who shall treat, or offer to treat, any disease or disorder, mental or physical, or any physical deformity or injury, by any system or method or to effect cures thereof, and charge therefor, directly or indirectly, money or other compensation." This act has been held constitutional both by this court and by the Supreme Court of the United States. It has been held to apply to a masseur; also to an osteopath; also to one who claimed to cure by means of laying on the hands and prayer—and this wholly regardless of whether such persons claimed to be physicians and practitioners of medicine or not.—(Black v. State (Texas, 216 S. W. R. 181)). *J. M. S. of N. J.*

RADIUM TREATMENT OF X-RAY BURNS

Dr. Daniel T. Quigley, of Omaha, Nebraska, in Urologic and Cutaneous Review for October says:

For many years it has been known that radium has a beneficial effect on old chronic x-ray burns and x-ray cancer. At first used in a very cautious manner to avoid the possibility of aggravating the condition, the good results gradually led to more free use of radium for these otherwise hopeless conditions, until at the present time radium is considered practically a specific in x-ray cancer and x-ray ulcer. The good effect of radium treatment is apparent not only in the old chronic case but also in acute x-ray burns and if used in the acute stage a smaller dose will suffice and less tissue will be destroyed. Some of the cases treated by the author have been so extensive that there was no hope of the skin filling in the defect and in these cases skin grafting was done, always with a successful result. These same cases had been repeatedly skin grafted before the use of radium without success.

It is a notable fact that in every case treated many different methods of treatment had been tried before resorting to radium; curetting, skin grafting, skin sliding, washes, salves, ointments, violet rays, etc.; but in no case were these things of the slightest benefit to the patient. On the other hand, these ill advised measures increased the days of suffering and invalidism and contributed to the destruction of tissue and often the mutilation of precious anatomical structures.

It would seem that with the excellent results to be obtained with radium in these cases and the entire lack of favorable results with other methods of treatment, the patient should be advised to seek radium element as soon as it is known that he has been administered an overdose of x-ray.

The physiological effect of radium rays on tissues is entirely different from that of the x-ray.

The x-ray causes chronic ulcers that do not heal and lead to the development of cancer. Radium burns always heal quickly and easily unless there is some constitutional disturbance such as diabetes or nephritis, and there is no tendency to cancer formation.

The rays of x-ray are irritating and poisonous, the rays of radium are benign and healing. In several thousand radium applications covering a period of seven years the author has burned every patient to whom he has applied radium. In using x-ray we would not knowingly burn any patient.

CO-OPERATION A NECESSITY

The medical profession's first need is organization, its highest need is co-operation. During the last ten years the efforts of men have been to perfect a good working organization. A survey of the present situation reveals the fact that these efforts have been eminently successful. While there are still many physicians not members of their county, state or national societies, the progress along these lines has been remarkable. Then we are safe in saying that the first need of the profession has been supplied, organization.

The next step is closer co-operation. Through the medium of our societies we have begun to get acquainted with one another. If this acquaintance leads to anything it should lead to actual efficient co-operation.

We should read the "handwriting on the wall." The night of competition is passing and the day of co-operation is dawning. This is true in every avenue of life—religion, education and commerce. Medicine should not lag behind in her preparation to meet new conditions. No longer can the country doctor work by himself. The demands of modern medical practice make close co-operation an absolute necessity.

The great unsolved problem of efficient medical and surgical service for the middle classes, particularly in the country, remains to be solved. It cannot be solved by individuals, it must be solved by united effort. In times gone by competition has bred jealousy, hatred and misunderstanding, and as a consequence, scientific medicine has not come to her own. Instead we have the popular quack and prosperous patent-medicine vender. The hope of the future lies in co-operation. This is only the next step of our journey toward the time when the physician will be the servant of the state, and financial returns will be entirely eliminated in the treatment of the sick.—*B., in Monthly, Bucks County (Pa.) Medical Society.*

THE CLEVELAND ACADEMY MEDICINE REPORTS SHOWING THE UNFAVORABLE TREND OF THE TIMES IN THINGS MEDICAL

The Future of Medical Practice

An important investigation was recently made by a special committee of the Cleveland Academy of Medicine on the subject of the organization and program of the Academy. The report says:

"Only the great medical profession, as widely as it touches public life, has been blind to the desirability of such influential participation in community life and has failed to appreciate that the trend of the times in all other professions, businesses, and trades is toward a policy of assertiveness and aggressiveness in pushing the profession, if not the individual members of it, into the life of the community. That the profession of medicine as now practiced is in danger of being engulfed in 'state medicine,' and that unless the profession is properly forewarned and prepared, the hospital, the doctor, whether general practitioner, surgeon, specialist or laboratory worker, may become a mere tool of capital, labor, and the politicians are also emphasized.—*Ohio State Med. Jour.*

ANOTHER ATTEMPT TO GET INTO THE PRACTICE OF MEDICINE WITHOUT QUALIFYING IN THE REGULAR WAY

Corporations Should Not Be Allowed Privileges Withheld from Individuals

The American Red Cross sees in the widening disparity between the increase of our population and the decrease in the number of graduates from medical institutions, an added reason for promoting general training in first aid and accident prevention.

The present standard of pre-medical education has lengthened the time and increased the cost of medical training, thus curtailing to a large extent the yearly attendance at the medical colleges. In 1904 there were 28,142 students attending the various medical colleges of the United States, this being the largest number in any year during the period 1880-1919. The total number of medical students in the schools for the year ending June, 1919, excluding pre-medical, special and post-graduate students, was 13,052. There was a decrease in 1919 of 578 below that of 1918.

In 1906 there were 162 medical colleges in the United States; in 1919 there were only eighty-five recognized medical colleges. In 1903 there were 5,698 graduates from all medical colleges, one graduate for every 14,020 of population. This number has gradually declined, in spite of the increase in population, until, in 1919, there were only 2,656 graduates, a decrease of fourteen below that of 1918—one graduate for each 40,230 people.

Universal first aid training would supplement the work of the physicians, and take from them the burden of caring for unimportant injuries. This would release their services for more serious cases.

MUSIC WITH WORK

Transplanting rice in the Philippines costs about forty centavos a day, with two meals, cigarettes and betel nut, but when music is provided the output of work is increased thirty per cent. It is often a blind man who plays. He sits on the low rice dyke and sings the old folk songs to his guitar, and frequently the workers join in the chorus. Some of the large stores in the States also tried the effect of music, with good results. We have not heard much lately concerning music in hospitals and operating rooms; perhaps the patients were of the same opinion as the Socialist press, which says that all this welfare work is enlightened self-interest. It proceeds without taking the trouble to find out whether such patronizing efforts are desired or appreciated.—*N. Y. M. J.*

STATE MEDICINE A MYTH

DELUDED PEOPLE WHO EXPECT THE STATE TO RELIEVE THEM OF THEIR MEDICAL BILLS AND AT THE SAME TIME GET FREE INSURANCE HAVE A SAD AWAKENING SHOULD THEY EVER INAUGURATE THIS SUPREME FOLLY

Declaring that "a system of state doctors would be even more dangerous than a state religion," an interesting editorial on the above subject recently appeared in *The Akron Beacon Journal.*

It is indeed encouraging to see that a proportion of the public as represented by editorial thought in the lay newspapers, is beginning to realize not only the fallacy but the grave dangers in a state system of social medicine. As several angles of the questions are treated in an interesting fashion, the editorial is here reproduced:

In a recent issue of this paper was an excellent editorial of our contributing editor, Dr. MacAyeal. It stressed the folly of peoples in experimenting with institutions which all human experience has found sound, and it expresses a sad note of inquiry as to whether the human race will ever see the folly of tearing down the things for which man has yet found no substitute. This is peculiarly true just now in all countries, nor is it lacking in our own. Despite the failures of a thousand years there is everywhere prevalent a tendency to call back to power the old absolutism of the state and to have it take over the endeavors of the individual. In other words the disordered war psychology has turned its back upon the lessons of history and once more wants to get back to the idea that the state should do all things. Nor does this idea prevail only in regard to industrial life but it includes all of the fields of human endeavor.

Nowhere, perhaps, is this better seen than in the new craze that the state should not only take over our possessions but also the care of our bodies. There are now two bills before congress the object of which is to have the United States take final possession of its subjects in all that pertains to health and bodily welfare. A like bill was before the last session of the Ohio legislature. The net idea in these bills is to inaugurate a system of state insurance which shall extend from the babe in arms to the senile ready for the grave. The state is to pay the bills, of course, out of money taken from the pocket of the taxpayer. It is to have state medical examination and inspection which in reality means the state is also to take over the doctors. Under this benevolent scheme the disciples of Galen would in time forfeit their proud estate and become in fact so many state plumbers and joiners and testers of humanity. It will pay us to consider the two inevitable results of such a system. Medical science in America leads the world because of the rewards that are offered to the man who by study and work becomes proficient in his profession. A Crile or a Mayo not only become world benefactors, but fame, money, and social prestige all await them as a fitting reward. Does any one suppose that Flexner and the long list of his fellow discoverers would have been increased had the state reduced them to the position of inspectors and human plumbers? Deny any man, even a scientist, the hope of an adequate reward for his labors and at once is removed pretty nearly all incentive to his labor. During the French revolution the state took over medicine as well as other things, and it was a notorious fact that the profession of medicine sank to a painfully low level even during those few years. Russia is trying to do the same thing now and we have it on good authority that the reputable doctors are escaping to other lands as fast as they can get away. It never has been nor could it be otherwise.

But the deluded people who expect the state to relieve them of their medical bills and at the same time to get free insurance have a sad awakening before them should they ever inaugurate this supreme folly. It was exactly this idea the present administration had in mind when it inaugurated soldier insurance. It forthwith inaugurated and set up a publication the purpose of which was to plant in the public mind the idea that the government could insure everybody for only a fraction of what they had to pay to the old line companies. There is now a deficit of two hundred and eighty millions of dollars in operating expenses although soldier insurance has in two years declined from over forty to less than seven billions. This deficit, of course, the people pay. It comes back to them in taxes and high costs all along the line. And yet this is only a foretaste of what would happen were any of these bills to pass which would set up in this country a system of state insurance and consequently a state control of doctors. However, it is only a part of the prevailing hysteria to turn the state for not only all things material but likewise for spiritual and moral guidance. It is, in fact, the most dangerous symptom of the times, and it is time for our people to stop and do some serious thinking. It will be a national calamity every time we concede to the state any more power or give it control of any line of human endeavor, for it already has vastly more power and more widely extended control now than it was ever intended to exercise. But should we go to state medicine and state control of the physical well being of the people that event will mark a calamity which in its far reaching consequences will be irreparable. A state religion would not be more dangerous than a system of state doctors.—*Ohio Medical Journal, Nov. 1920.*

THE POWER OF THE LIVER TO FIX GLUCOSE IN DIABETES

Paulesco shows that in diabetes of pancreatic origin the power of the liver to fix glucose in the form of glycogen was diminished but not destroyed. The power of muscle to fix glucose was not diminished. The incapacity is relative and is a consequence and not a cause of diabetes.—*C. R. Sec. Biologie, April 24, 1920.*

THE DIAGNOSIS OF MALARIA BY ADRENALIN

Dazzi gave injections of adrenalin 0.001 to 20 cases which had not shown any clinical evidence of malaria for some time. Twelve of these cases had no parasites in the blood and in eight cases they only appeared very rarely. The temperature was taken every four hours. There was never any rise of temperature but in all cases malarial parasites appeared in the blood in 20 minutes after the injection of the adrenalin. In 24 hours the maximum was reached and then they began to disappear. In each case the size of the enlarged spleen was temporarily reduced as though its hyperemic content had been squeezed out.—*Il Policlinico, Nov. 3, 1919.*

TIME OF OVULATION

Watrin and Hamant have examined macroscopically and microscopically 135 healthy ovaries removed at operation from patients in whom menstruation was known to be regular and who were classified according to the period intervening between operation and the next expected menstruation. The authors conclude that ovulation takes place at a fixed time twelve or fourteen days before the beginning of menstruation. At the time when the menstrual flow appears the corpus lutem has attained its maximum development, at the end of menstruation its long diameter is 16 mm., five days after the end of menstruation less than 7 mm. Watrin and Hamant believe with Fraenkel, Ancel and Bowin, and Villemin, that the corpus luteum by means of its internal secretion, determines menstruation.—*B. M. J. July 17, 1920. Abs. from Rev. Med. de l'Esr, Mai, 1920.*

WHAT ARE VITAMINES?—BEST DESCRIBED BY WHAT THEY DO

"What are vitamines?"

This is a question asked repeatedly since the importance of these compounds in foods has come into prominence, but no definite answer has yet been given. Investigations by scientists at universities, agricultural experiment stations and institutions for medical research have revealed much information regarding the function of vitamines in body maintenance and building, and the parts of the various foods in which they are to be found.

That vitamines are compounds absolutely essential in the food, in order to maintain the weight of the body and produce growth, has been definitely proved. The lack of vitamines causes deficiency diseases, so named because they are due to lack of something in the diet. Vitamines are present and are needed in such small quantities in the food that chemists have not yet been able to isolate them from the many other compounds which are in foods. For this reason, we know very little of the actual character of vitamines.

THREE TYPES OF VITAMINES

According to a statement by Dr. Carl O. Johns, in charge of nutrition work in the Bureau of Chemistry, U. S. Department of Agriculture, vitamines have been classified into three different types, depending upon the functions which they have in promoting well-being and growth.

The first type is known as water-soluble vitamines, and these are necessary in order to obtain growth from food. Lack of these causes beri-beri, which manifests itself by disease of the nervous system and by other symptoms. These vitamines are found in seeds, in green plants, in certain bulbs and fleshy roots and fruits, and in milk and eggs, as well as in certain organs in the animal body. The seeds referred to include beans, nuts and the various cereal grains. When cereals are very highly milled in order to obtain a very fine white flour, a large part of the vitamines may be removed. Vitamines are also lost when rice is polished in order to remove the outer layers which contain most of the vitamines. It is for this reason that a diet consisting mainly of polished rice may cause beri-beri, while unpolished rice does not cause this disease.

FAT-SOLUBLE VITAMINES

The second type is known as fat-soluble vitamines, and these are found in butter, eggs, milk and in certain animal organs such as the heart, kidneys and liver, and to some extent in other fats as well as in green vegetables. They also exist in smaller quantities in certain seeds. When fat-soluble vitamines are absent from the diet animals and man are subject to a disease of the eyes, which appears to be related to xerophthalmia and which, if prolonged, may produce blindness.

The third type is known as antiscorbutic vitamines—that is, those which prevent scurvy, which manifests itself by disease of the bones as well as in other ways. These vitamines are found in oranges, grapefruit, lemons and other citrus fruits, and in green vegetables such as tomatoes, spinach and lettuce, and in eggs and raw milk. The drying of vegetables frequently destroys the activity of the antiscorbutic vitamines. The best source of vitamines is in the leafy parts of vegetables, and this is one of the reasons why spinach, lettuce and cabbage are valuable foods.—U. S. Department of Agriculture, Division of Publications.

CITY DOES NOT IMPLIEDLY WARRANT PURITY OF WATER SUPPLY

The New York Appellate Division holds that, where the charter of a municipality provided for the maintenance of a waterworks system, either by general taxation or assessment on the property supplied, the city, though it collected water rates, cannot be deemed engaged in the selling of water, in the ordinary use of the term. Assuming, however, that the municipality is a seller of water, it is held that where

it furnished contaminated water and one using it became inoculated with typhoid fever, the municipality is not liable for breach of implied warranty to furnish pure water, in view of the New York Personal Property Law, Section 96, which provides that there is no implied warranty or condition as to quality or fitness for any particular purpose of goods sold, except where the buyer makes known to the seller the particular purpose for which the goods are required, and it appears that the buyer relies on the seller's skill and judgment. The soil through or over which the water passes cannot be minutely examined; contamination of the water can be restricted, but not prevented; inspection alone will not reveal the presence of bacteria; analyses of the great volume of moving water collected in the ponds for distribution cannot be made; and an inspection, an examination, or an analysis of every drop of water furnished is beyond the power of the seller.—Canavan v. City of Mechanicsville, 180 N. Y. Supp. 62.

SIR MALCOLM MORRIS OF ENGLAND SAYS:

The medical profession of Great Britain finally realizes the necessity for thorough organization. In fact, it has become a question of self defense.

LONDON, August 6. 1920.—First Annual Meeting of the Federation of Medical and Allied Societies.—Sir Malcolm Morris presided over the first annual general meeting of the Federation, which was held in London on July 25 last. After the report of the executive council had been read, Sir Malcolm Morris gave his presidential address and said in part that the need for such a Federation could be deduced only too easily from the experience of the last few years. Was it possible to maintain that when questions affecting the welfare of the great body of medical men had been before Parliament the profession had been able to pull its full weight? Was it so, for example, when the health insurance system was being framed? Certainly it was not. Who that cared supremely for the highest interests of the profession—and among these highest interests he ranked its good repute—could look back upon the stormy events of those days without some sense of humiliation? The chaffering in public into which the profession was forced was only too well calculated to give the impression that medical men were thinking very much of their material interests and very little of the nation's welfare. Had there been in existence such a body as the Federation was fast growing to be, how different would have been the beginnings of health insurance. The Government would have known at the outset that it had to reckon with a Federation through which were able to speak not only the doctors, but also pharmaceutical chemists, who were immediately concerned, and related bodies which had no material interests at stake to deflect their judgment. How could the deliberate conclusions of such a Federation have failed to carry weight with the Government, and with that public opinion which was the final court of appeal? The need for federation was deducible not less plainly from the multiplicity of existing organizations. That there were some 200 separate medical bodies certainly showed that the profession was not lacking in the organizing faculty. But was it not evident that the effect of all this organizing energy would be vastly strengthened if these bodies were leagued together? They were influential in very different degree. But were they all federated, the most powerful would have their influence increased tenfold; the least powerful would have their influence increased a hundredfold. With regard to politics, the speaker said that it could not be too often insisted upon that the Federation knew no party politics. To say that it knew no politics would be absurd, for the most important of its objects was to take political action at every possible opportunity. But it gave its support, its active and influential support, to Lieutenant-Colonel F. E. Freemantle, who was elected as Coalition Unionist, and to another member of the profession, Dr. Dunstan, who stood as a Labor candidate. And every medical member but one of the legislature except Dr. Addison, whose office debarred him from formal association with a movement with which he had none the less avowed his sympathy, including Lord Dawson, who could speak for the profession in the House of Lords, belonged to the Federation. The medical members of the House of Commons now numbered ten, and it was known that they were only the advance guard. Before long, with the active backing of the Federation, their numbers would be multiplied, and the time was at hand, on all questions affecting health interests, the Whips would have to reckon with a solid phalanx of medical men who would be able to speak with one voice on public health, however much they might differ on other questions. If any Government starved the Public Health Service they must cry "Hands off," and a powerful medical group in the House of Commons would be a bulwark. Behind it would stand the Federation. No longer would it be a "grave defect in medical organization," to use Dr. Addison's words, that there should be "no body of men in the profession who could be appealed to for judgment on a great public issue." Such a body the Federation was destined to become. That the system known as State medicine would undergo much further development was inevitable. The profession had no alternative but to adapt itself to the nation's needs, whatever form the adaptation might take. That task would require more statesmanship than was to be found in any one of the existing medical organizations, be it never so powerful. It was an enterprise which would tax to the uttermost the statemanship of the whole profession. If that were so, how could any medical society or association be justified in withholding whatever contributions it could make to the common stock?

It would seem that the medical profession of Great Britian has finally realized the necessity for thorough organization. In fact, it has become a question of self-defense. The allied societies of the country are

splendidly organized, and unless the medical men are strong enough to resist them, these societies will simply dictate terms to them. As Sir Malcolm Morris truly said, the Health Insurance Bill should open the eyes of medical men to what is before them unless they are in a position to fight for their rights. At present they are almost politically impotent and to a great extent at the mercy of self-seeking, self-serving politicians who are more than ever firmly convinced that vox populi is indeed vox dei. Of course, it is obvious that the character of medical practice is changing and that it is useless for doctors to kick against the pricks. They must adapt themselves to circumstances so long as these are not wholly opposed to the dignity of the profession and their interests. They must give and take, but must not allow themselves to be merely so many pawns in a bureaucratic system and in which public and individual health play but subsidiary parts. The only way in which the profession can assert itself is by union and organization. It only requires political power to protect itself and to lead in health matters rather than to be led or driven by those whose object is not so much the conservation of health as the consummation of their own political ambitions. —*London Letter, Medical Record,* September 4, 1920.

Correspondence

WHY NOT LIST THE PLUMBERS IN PANELS AND MAKE THEM SERVE THE PEOPLE AT THE RATE OF 25 CENTS AN HOUR AND BE SUBJECT TO CALL AT ANY HOUR DAY OR NIGHT?

SUPPOSE SOMEONE TRIED TO PLACE THIS PROPOSITION BEFORE A MEETING OF A PLUMBERS' UNION. HE WOULD PROMPTLY LAND INTO A HOSPITAL OR MORGUE. WHY? BECAUSE THE PLUMBERS ARE ORGANIZED.

Chicago, Ill., Nov. 14, 1920.

To the Editor: By a slight stretch of the imagination the police powers of the State of Illinois could be construed to cover entirely the subject of plumbing. Plumbing is a necessity of most people of the state, and their health depends upon it in no small measure. Why should there not be a compulsory plumbing insurance law with tax levied both upon owners and tenants to maintain healthful plumbing? As the state licenses the plumbers why should they not be listed in panels and made to serve the people at a rate of 25 cents an hour and be subject to call at any hour of the day or night when their services are called for by the taxpayers.

Suppose some speaker tried to place this proposition before a meeting of a plumbers' union. I think he would soon land in a hospital or a morgue. Why? Because the plumbers are organized. They have no high-brows and no low-brows. They are all of the same brow. They have no Super-college of American Plumbers. They do not spend any time at their meetings discussing the most artistic method of wiping a joint or connecting a sewer pipe. If any body of capitalists or philanthropists tried to put over a compulsory plumbing insurance law they would fight politically and physically, and if the law got on the books there would be the most beautiful strike anyone ever saw. No plumbing would be done except by the plumber for his own family or that of a fellow plumber and the rest of us could go and hang ourselves. The plumbers through their associations with other labor bodies would have an easier time to defeat a public plumbing insurance law because the milk drivers' and carpenters' and machinists' unions would see which way the wind was turning in regard to their own work.

In order to prevent this public health insurance from being put over in the State of Illinois we have got to inform the electorate. We must show the people that we have truth and justice on our side. Women have more to say about what physician shall be called than do the men of the family. Now that she has the ballot she must realize what such a law would mean to her. Take the woman who has had the same physician deliver her three children. How would she like to have to take some unknown doctor deliver the fourth because he was on the panel in her district? The family doctor knows the inmost details of the family life, the sad and the sordid things, not as a matter of gossip, but because they are necessary to a diagnosis or because the patient must have someone to tell. How would these patients like to have to tell these torturing things anew to every doctor on the panel.

Here is a field for women physicians to address meetings of women and talk to them as only a woman can upon this proposed, pernicious law. If the law were bad only for the doctors, it might please some minds to say, "Let the doctors worry," and take a delight in favoring a law just to see us suffer. But they must be shown that

what is bad for the doctors will be bad for them. What kind of plumbing would we get, if we got any, under a public plumbing insurance law? What kind of service do we get from anybody that is miserably underpaid? But the proposed public health insurance can be shown to the average person to be bad for the sick woman, the croupy baby and the rheumatic man.

The financial interests, in spite of the poor fees paid to physicians, have been hard hit by the workingmen's compensation law, and they seek to unload the burden on the taxpayers, the working men and the doctors. These interests say that we doctors are the lowest, necessary menials of industrialism. We say that we belong to a high and noble profession. Perhaps we need a traveler from Mars to tell the medical profession just where it belongs. Not having such a judge who must decide the case? The people of the State of Illinois will have to decide and they must be educated through propaganda.

Yours sincerely,

E. P. S. Miller, M. D.

DOCTOR HUGH CABOT RAPS STATE MEDICINE — COMPULSORY HEALTH INSURANCE AND ALLIED SCHEMES. THE MEDICAL STUDENT'S IMPRESSION OF THE ECONOMIC OUTLOOK.

Dr. Cabot Does Not Regard the Workingman's Compensation Law as a Ninth Wonder of the World. He Is Quite Sure That Competition in Medicine as a Business Makes for the Greatest Good, the Best Service and the Most Marked Efficiency.

The following letter from an Ann Arbor medical student shows how the present-day trend of medical economics is causing alarm among the student body:

Ann Arbor, Mich., Nov. 20, 1920.

To the Editor: Your editorial in the November issue on the betrayal of the medical profession has set a number of tongues wagging and a number of brains thinking (if that be possible) in this little old home town of Dr. V. C. Vaughan, dean of the medical department of the University of Michigan. Ancient history is being dug up and there is talk of how once upon a time a learned professor is said to have given P. T. Barnum a testimonial to the effect "that his White Elephant was the simon pure article; that the white was skin deep and not just painted over," as later in the life of the elephant it was proved to be.

Some of the caustic youths are wondering if history is about to repeat itself and that the testimonials to the efficacy of compulsory health insurance, state medicine, community health centers and all the other brands of uplift may not in time prove to have been as reliable as that given to Barnum's white elephant.

While Dean Vaughan seems to be willing to go sled length in putting the practicing physician off the map, Dr. Cabot, formerly of Boston and the world at large, is sending out feelers. Vaughan does not hesitate to say that curative medicine does not cure, but the scholarly Cabot wants it to make more and better cures and he makes it very *obvious* and very *clear* to use two of his favorite words, that he has no use for compulsory health insurance and state medicine as defined by others; that he does not regard the Workingmen's Compensation Law as a ninth wonder of the world and that he is quite sure that competition in medicine as in business makes for the greatest good, the best service and the most marked efficiency.

While Dean Vaughan is making the rounds of the country working up aid and sympathy for his brand of state medicine, Dr. Cabot is accepting invitations to tell what he believes will cure all the evils that flesh is heir to or has achieved.

Just the same, Hugh Cabot has convictions and in a speech made last week, he said things right out in meeting. Speaking of the Workingmen's Compensation Law, he said the men were not being given the treatment they should be given in far too many cases. He cited an instance of how a boy came to him with a crushed hand—he told how he worked to give back to the lad a good working member—how day after day he gave time and thought to the case and, when he had done what in his judgment was $2,000 worth of work, he sent in a bill for twenty-five dollars and it was promptly returned as being too much. And, added Dr. Cabot quietly, I refused to do any more of that work. It would have done that man Foley, who is fighting the

insurance companies cutting down of physicians' fees a heap of good to have heard Cabot's statement. Then again, this scion of Plymouth Rock took a fall out of the smug conceit of our state-trained army and navy medical corps. Dr. Cabot was very polite in saying that in his four years spent abroad during the war, he had not come in contact with the American Medical Corps, but reading between the lines, the student could be very sure that Dr. Cabot was not making any exceptions.

He said that his work had brought him in close contact with the medical corps of the English and French for a long period of the war and with the Italian for a shorter period. He found that men who were sure of their pay and their promotion were very much more apt to be efficient and painstaking *in report making than in taking care of their patients.* The speaker said something about its being all right, "if it was short of murder," but I did not get the sentence as it was an aside. Since this was a concrete example of state medicine, it did not meet with the approval of Dr. Cabot. One could deduce from his remarks that it was not only inefficient, but that the personal equation — the intimate relations between patient and medical adviser—the interest of the physician to achieve results—his work to bring back health and strength to the sick was in most cases absent.

Of compulsory health insurance and state medicine, Dr. Cabot expressed the opinion that either put in force would spell financial bankruptcy to any state or nation putting into effect the bills which have been introduced in this country. He insisted that it was not a question of the *duty* of the state (which a special brand of uplifters claim), but that it was a *problem* of the state and a problem which we are a long way from solving. He made it very clear and very obvious that when you cut out competition in the human equation, you make for indifference, ease-taking and kindred ills. That to hire, and if necessary, fire all the physicians by the state, would bring a condition which he did not care to contemplate socially, medically or financially.

But he felt that something ought to be done. The doctors were leaving the small towns and the rural districts and he, for one, didn't blame them. Here we are educating boys to depend on laboratories, x-ray artists, etc., for their diagnosis and, naturally, when a man finds himself without any of his medical props, he is going to be very indignant. (I am saying that, not Dr. Cabot). In the old days, a surgeon would find himself in the country and be asked to see a case; it might turn out to be, say, a mastoid, but if the physician did not have a trained nurse and a trained anesthetist, and an x-ray machine operator, and a laboratory to finish up what remained of the diagnosis, did he say, gentlemen, I regret to report that in justice to myself and my personal reputation, I cannot do anything for this case. He did not. He improvised an operating table. He took the tools available, if only an ordinary hammer and chisel, and he made a good job as many a patient can testify, for they lived long, in comfort and in good health and what can the best equipped operator do more than that? But nowadays, as Dr. Cabot admits, you are turning out physicians and surgeons taught to walk with crutches. Take away their favorite nurse, their special anesthetist, et al., and they are lost and blame the results obtained, not on their lack of what shall we say, skill, but on the character of the crutches. (Again, I am saying this, not quoting Dr. Cabot.)

After hearing Dr. Cabot, one wondered if the fault lay not in the student, but in the methods by which he was being taught. At any rate, that is the way a bunch of us argued on the car going home.

But to proceed: Dr. Cabot thought the remedy for all the medical ills lies in making community health centers. This plan was not very clear in Dr. Cabot's mind. It was to be the center of all medical activities in a county. The county was to pay the bills, with possibly later help from the state. It would preferably be in charge of a woman, because women have proved that they are the best go-betweens the physician and the patient. Just why the go-between is needed, not stated. Then theoretically (my word), the hospital shall be open to *every* physician in that community, but practically it will be open to such physicians only as fill the bill or as Dr. Cabot said come up to the standards, however high that standard may be placed, fixed by the board of directors. This community center is to have laboratory chiefs, bacteriological chiefs, anesthetist experts, x-ray experts and, above all, a hospital. Dr. Cabot was absolutely silent on

who was to appoint these boards of directors for the community hospitals. He was absolutely silent as to how a county could stand up under such a staggering array of experts who would all expect salaries, commensurate with their titles—he did not go into detail as to how the practicing physicians would prove their ability to reach the high standard required—whether it was to mean the diploma of certain medical schools — the actual proof of their ability by end results, and he was equally silent on who was to fix this standard—whether it was to be the lady director or the board of directors. "What did you make out Uncle Hugh was driving at," asked one medic. "Driving at, you goat? why the University of Michigan is to furnish the ideals, the standards, possibly the lady directors, but you can bet your little old life that the University of Michigan medical staff will furnish all the nice, juicy consulting fees to those community centers," said a senior. And the people of the community, the physicians who must pay their taxes like little men, to pay not only the salaries of the professors of the University of Michigan, but pay for the hospital, out of which he may be shut and the patient who must take what is given him, if his chosen physician does not meet with the approval of the standard, must foot the bill, what about them? "Say, boys," interjected a freshman, "don't you think Uncle Hugh has forgotten that once upon a time there was a Boston Tea party on account of taxation without representation?"

When Dr. Cabot had finished his talk, he was asked if this plan had been put in force anywhere. The doctor was tickled to death that he had been asked that question. Why, he had gone over to Chicago just last week to meet a Dr. Sampson, who had put the scheme on the map in Iowa. And that map is no slang phrase, either, for Dr. Cabot said that Dr. Sampson had the most beautiful and the most wonderful maps of the community centers; that the *very maps* had converted Dr. Cabot to the scheme, although he admitted that he hadn't had time to go himself to see how this plan worked off the maps as well as on. He suggested that any hearer might take a trip to Iowa (name of place not given) and see Dr. Sampson.

Well, when Dr. Cabot finished, a voice was heard from the rear of the room. It was a big voice and a long, lanky middle westerner who owned it. His name was Dr. Kennedy, said to be chief of staff of Grace Hospital. He admitted that he had come to the meeting with what the vulgar might term "blood in his eye," if approval was to be given to compulsory health insurance, state medicine and other alleged duties of the state, but by calling it a "problem" of the state, the Pilgrim father had taken all the fight out of the western Indian. That word problem was a pipe of peace. Dr. Kennedy roughly sketched the history of compulsory health insurance; showed what Old Otto, Prince von Bismarck had up his sleeve, when he worked it off on the German empire; paid his compliments to the type who would socialize medicine and make of it a battering ram to socialize every thing else in the world; drew a picture of the sacred relations between patient and physician and then served notice, in no uncertain terms, that the physicians of Michigan were by nature peaceful; that in this vicinity all injuns were good injuns, not just the dead ones, and that, if war was to be declared on the profession, war paint and feathers were still on hand; that tomahawks could be sharpened and that the spirit of old Pontiac and Tecumseh and all the gay boys of old were prepared to make one last grand fight before going to the happy hunting grounds.

And that is why the medics and the prospective medics of the old Campus are wondering where they are at, and whether medicine is going to be one grand sweet song, of state paid, state regulated medicine, with the prizes going to the best wire puller, or if it is going to be a battle of free men where the fittest shall survive. I wonder what the fellows in the other colleges are thinking. Can't you get the under grad. to take a hand in what is to him of vital importance?

R.

ST. LOUIS UNIVERSITY SEEKS FUNDS

To the Editor: St. Louis University, the oldest seat of learning west of the Mississippi River, has for the first time in its more than a century of endeavor made a public appeal for funds, the larger portion of which are to be applied to the support of the Colleges of Medicine and Dentistry. The University has asked its alumni and friends to raise the sum of $3,000,000 as a Centennial Endowment Fund, in commemoration of

the 100th anniversary of the founding of the institution. The anniversary occurred in 1918, but because of our war conditions existing at that time, with over 3,000 of the undergraduates and alumni of the University having answered the call to arms, the celebration was postponed until conditions were more nearly normal.

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Public Health

COOPERATION IN ILLINOIS TUBERCULOSIS WORK

The annual meeting of the Illinois Tuberculosis Association, held in Springfield on Friday and Saturday, November 19 and 20, was the center for discussion of the cooperative work between the State Department of Health and the Illinois Tuberculosis Association, recognized throughout the United States as being the best existing example of the cooperation of governmental and extra-governmental health agencies.

The Illinois Tuberculosis Association expended considerably over $100,000 during 1920 in tuberculosis work throughout the state. As the result of the activities of the Association, $1,800,000 of public funds have been appropriated for tuberculosis work by counties and municipalities during the past two years.

DIET LISTS FOR INFANTS AND CHILDREN

The Division of Child Hygiene and Public Health Nursing of the State Department of Health has just published a twelve-page circular, including approved diet lists for infants and children.

This pamphlet includes a table of weights and measures from normal children and other valuable tables relative to food constituents.

Copies of the circular in reasonable numbers will be supplied without charge to physicians, child welfare organizations, Parent-Teachers' Associations and other agencies in Illinois, on application to Dr. C. St. Clair Drake, Director of Public Health, Springfield, Illinois.

ANNUAL HEALTH REPORT

The annual report of the State Department of Health for the fiscal year ending June 30, 1920, is now practically completed and ready for the printer. In common with other departments of the state government under the Civil Administrative Code, the prompt publication of the annual report is regarded as a matter of very definite importance so that the public may be constantly advised as to all governmental activities. The annual report of the State Department of Health, however, is necessarily delayed for several months after the conclusion of the fiscal year, on account of the large amount of statistical data contained. The reports of births and deaths occasion necessary delays, both in their collection, compilation and interpretation. It is expected that the complete report of the various state departments will be issued by January first.

VENEREAL DISEASES IN ILLINOIS

The Division of Social Hygiene of the State Department of Health received reports of 31,876 cases of venereal disease during the year ending June 30, 1920, as compared with reports of 16,915 cases for the year ending June 30, 1919. Of the reports received during 1920, only 6,910 gave information sufficiently complete for tabulation. Of this number, 3,702 patients were between the ages of 20 and 30; 1,284 between the ages of 16 and 20; 1,178 between 30 and 40; 437 between 40 and 50, and 173 over 50. Eighty-three were between the ages of 12 and 16, and 53 under 12.

Males numbered 5,429 and females 1,481. Whites numbered 6,182 and negroes 728. As to social condition, 429 were single; 2,073 married; 325 widowed and 222 divorced.

INCREASED WORK FOR DIAGNOSTIC LABORATORIES

The Division of Diagnostic Laboratories of the State Department of Health has completed a tabulation of work done during the year ending June 30, 1920, showing that 31,494 specimens were examined during the year. This is also three times as many specimens as have ever been examined in a single year by the Division. The number examined last year was 12,003.

Of the 31,404 specimens examined, 13,139 were Wassermann tests; 6,296 sputum examinations for tubercle bacilli; 3,276 swabs for diphtheria; 1,529 Widals; 1,516 para-typhoid A and 1,532 para-typhoid B, for typhoid and para-typhoid. There were 1,468 smears for gonococci; 263 specimens for the detection of meningococci; 73 blood specimens for the detection of malaria and 529 miscellaneous specimens.

COMMUNICABLE DISEASES IN ILLINOIS

Throughout a large portion of Illinois, particularly in the southern section of the state, there is at this time an unusual prevalence of diphtheria for the most part of a mild type, but spreading to such an extent as to cause grave concern.

Diphtheria epidemics have prevailed at Germantown, Clinton county; Monticello, Piatt county;

Odin, Marion county; Sims, Wayne county, and Petty township, Lawrence county.

While not prevalent to an alarming extent, several outbreaks of smallpox have been reported during the past month at Virginia, Cass county; Augusta, Hancock county; Buffalo township and Polo, Ogle county.

About one hundred cases of scarlet fever have been reported at Springfield and there has been an outbreak of the disease at East Peoria.

PUBLIC HEALTH NOTES

The Division of Social Hygiene of the State Department of Health is arranging the itinerary for a lecturer before county medical societies who will present two new motion pictures, one the "Diagnosis and Treatment of Syphilis" and the other "Gonorrhea in the Male."

At the November election, special taxes for the use of county tuberculosis sanatoria were voted in Christian and Will counties, and the proposition of establishing a county sanatorium was passed in five other counties in the state. Champaign county made an appropriation of $90,000; Douglas county, $60,000, and Kane county, $150,000.

Society Proceedings

ADAMS COUNTY

OCTOBER MEETING

The Adams County Medical Society was in the active stage on October 11, 1920, and there isn't any reason why this should not be true the second Monday of every month. If Dr. John Lincoln Porter could only realize or know how long it had been since our society members came out in such large numbers, he would come more frequently. Of course, we know he was the cause of so many being present, both at the clinic and at the evening meeting and we feel proud to have extended this courtesy to him. The doctors always make an effort to be on hand when they know Doctor Porter is coming.

As usual the morning clinic, which began about 9:30, was large and it was necessary to have some patients wait until after lunch, which was served at the Country Club and also well patronized.

At the evening session the doctor gave a talk on "Painful Backs." He gave the symptoms, pathology and differential diagnosis of:

(1) Tuberculosis of the Spine,
(2) Osteoarthritis of Spine,
(3) Carcinoma of Spine,
(4) Traumatic Spine.

In the discussion that followed, many interesting points were brought out. Before adjourning, Dr. Porter was given a sincere vote of thanks, and an invitation was extended to him to visit the society in the very near future.

In order to give our guest as much time as possible, the reading of the minutes was dispensed with. A communication from the Chamber of Commerce relative to the renewal of membership for the society was read. The society decided that said membership be renewed.

Under heading of new business, Dr. Swanberg suggested that the society have a three or four day postgraduate course every year—sort of a Medical Chautauqua.

On motion the president was instructed to appoint a committee to look into the matter.

Adjourned.

NOVEMBER MEETING

On November 8 at 8:40 P. M. the Adams County Medical Society was called to order by First Vice-President Dr. H. P. Beirne, the president being absent.

Meeting held at the Chamber of Commerce. Routine business transacted, and the attendance was good.

Scientific work was a talk on "Radium" by Dr. H. P. Beirne, who gave the history, the physics, the limitations of radium, and also described the different rays. Several patients who had been treated or are being treated with radium were present, and served to make the program more interesting.

In the discussion that followed, Dr. Harold Swanberg, roentgenologist, spoke on the use of the x-ray as a treatment measure. Adjourned.

ELIZABETH B. BALL, Secretary.

CHICAGO MEDICAL SOCIETY REGULAR MEETING, NOVEMBER 3, 1920

1. The Value of the New Knowledge of the Vestibular Apparatus in Intra-Cranial Localization—Frank J. Novak, Jr.

Discussion—Frank Brawley, Lewis J. Pollock, and Joseph C. Beck.

2. Diseases of the Esophagus—Wm. Lerche, St. Paul, Minn.

REGULAR MEETING, NOVEMBER 10, 1920

1. The Therapy of Catarrhal Fevers—Bernard Fantus.

2. Local Anesthesia in Subtotal Thyroidectomy—John W. Nuzum.

3. Defects in Present Methods of Attemps to Control Venereal Diseases — Suggestions — Albert E. Mowry.

JOINT MEETING CHICAGO MEDICAL AND CHICAGO PEDIATRIC SOCIETIES NOVEMBER 17, 1920

1. The Pathology of Tuberculosis in Children—Richard S. Austin.

2. The Physical Development of Tuberculous Children—Maurice M. Blatt.

Discussion opened by May Michael.

3. The Symptoms and Treatment of Latent Tuberculosis in Children—A. Levinson.

Discussion opened by Max Biesenthal.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY

MEETING OF MARCH 1, 1920—Concluded

Dr. Samuel Salinger read a paper on "Primary Periositis of the Mastoid."

ABSTRACT

The essayist explained his title as applying to infections of the cortical periosteum, occuring independently of any disease of the tympanic cavity or mastoid bone proper. They usually are due to trauma or exposure to cold (a number of other causes are also cited from the literature) and come on rather abruptly with severe local and mild constitutional symptoms. Frequently the infection enters by way of the cartilago-osscous junction of the external auditory canal, and the post auricular swelling may then extend into the osseous meatus, obscuring a view of the drumhead and making the differential diagnosis from mastoiditis difficult, especially if a previous history of otitis media is not definite. Another type, of which two cases were cited, comes on more gradually and develops into a subperiosteal abscess with milder local symptoms than the former. The diagnosis is important with reference to the prognosis, as these cases yield promptly to simple incision and are much less serious than secondary periostitis of tympanic or mastoid origin, which they so frequently simulate. Early incision, even though fluctuation be not present, is indicated to prevent erosion of the bone or extension of the inflammation into the external auditory canal or into the tissues of the neck.

DISCUSSION

Dr. Otto T. Freer thought that Dr. Salinger's valuable paper would attract attention to the differential diagnosis of external mastoid abscess and mastoiditis, so preventing needless mastoidectomies. He advocated a slender, cylindrical, not conical, ear speculum only one-eight of an inch in bore, in order to get a view of the membrana tympany, in spite of the swollen meatal walls in these cases. A conical speculum wedges into the swollen skin of the meatus and cannot pass beyond the swelling. To see through so small a speculum, however, a Kirstein light is needed, the headmirror will not serve the purpose. While Kirstein headlamps are at present not obtainable, Sharp and Smith intend their manufacture in the near future and will have them ready by July 1st at the latest.

Dr. Eugene R. Lewis (Dubuque, Iowa), stated that he had a very interesting case in December, following a septal resection in a boy of seventeen, who was in very poor physical condition, and the resection was followed by an acute otitis media. Between Christmas and New Years he attended some party. The next day the ear discharge ceased abruptly and within twenty-four hours he had a tremendous swelling of the mastoid, apparently a mastoid abscess. The boy had quite a lot of pain and it was a typical looking case, with a swelling of the posterior wall. The patient was kept in bed and observed under tentative treatment for five days, but the only result was further dissemination of the swelling. X-ray plates showed intercellular partitions rather clearly. He told the father of the boy that it was a somewhat atypical case and he did not think it was a mastoid abscess, although it was suggestive of that condition. He had enlarged the perforations the first day, but could not get any discharge except a little muco-purulent material which soon ceased. He suggested making a posterior opening for inspection; if it was a periostitis they could save the mastoid, and if not, simple mastoid drainage could be done. This was done under local anesthesis. They denuded the periosteum ver ywidely, looking for periosteal pus or signs of cortical change, which they did not find. They went into the neck for two or three inches and opened up as wide as they could, so as to get free drainage. The wound closed in three weeks and there was no discharge from the middle ear after the fifth day. He did not know what the cause of the trouble was, but evidently acute extension of the infection caused some interference with the circulation.

Dr. Salinger (closing) said there were some points in connection with these swellings that could be cleared up. He thought there was a field for investigation in reference to the lymphatic supply, which he believed had something to do with the swellings. He did not know why these things would puff up, and when incised, promptly subside. This had been reported a number of times in cases of enormous swellings with pain and edema that recovered after being simply incised and sewed up, but the etiology was not known. The point he wished to make was that with a swelling over the mastoid and a swelling above the meatus, it was only natural to suspect a mastoid infection; yet without a history of previous discharge one might be at a loss. He had not been able to push aside the swelling in the meatus with a funnel (as suggested by Dr. Freer), because of the great pain. He knew that Dr. Freer was a great enthusiast about the Kirstein light and agreed that it was a valuable adjunct in the examinations.

CHICAGO OPHTHALMOLOGICAL SOCIETY

A regular meeting was held March 15, 1920, with the President, Dr. Alfred N. Murray, in the Chair.

SOME INDICATIONS FOR EVISCERATION

Dr. G. W. Mahoney read a paper on this subject. In the first few years of practice in special work, wherever he found it necessary to remove an eye, he did an enucleation in nearly every case, and in many cases with considerable deformity and in children with lack of development of the side of the face from which the eye was removed. He soon gave up this practice in many cases and later in many more. In panophthalmitis with a septicd distended eyeball and acute pain he felt evisceration was the operation indicated, and not drainage or enucleation.

In staphyloma of the cornea following ulcus serpens, with a markedly protruding cornea which the patient was unable to cover or moisten with the conjunctiva eyelids, there was frequently breaking down in the center and giving a very unsightly and troublesome eye, hence evisceration was indicated. In absolute glaucoma with recurring exacerbations of inflammation and pain, he always did an evisceration. In kerato globus he had never been forced to the extreme of removing the eyes where both were involved, but he had where one eye was enormously distended, in which the distention increased month by month, the sclera becoming more and more thinned, pain increasing, deformity more apparent and the sclera in danger of rupturing, he had done an evisceration.

If a patient came with a perforating wound of the

eyeball involving the ciliary body, the treatment was perfectly clear, it would make no difference whether the patient had vision in the eye or not, that eye should be removed, for he stood in the greatest danger of some day developing sympathetic ophthalmia, as the essayist had often seen, and this might be very soon and without warning, the practice of carefully dressing the penetrating wound and covering it with a conjunctival flap, he was sure was poor surgery. The wound would heal, it was true, unless infected at the time of the injury, and the eye would quiet down, although it might be weeks in doing so, but the patient was in constant danger of sympathetic ophthalmia any time after ten days to two weeks from the date of the injury.

In the five classes of cases mentioned where removal of the eye was necessary, he always did an evisceration. The technic for the operation was described.

The author thought there should be no hesitancy in choosing between enucleation and evisceration in children, for certainly in children, when the entire globe is removed, the side of the face from which the eye had been removed did not develop as well as the opposite side, and the deformity increased as time went on.

ENUCLEATION AND ITS SUBSTITUTIONS CONSIDERED FROM A COSMETIC STANDPOINT

Dr. Harry J. Woodruff of Joliet, Illinois, stated that a person was entitled to lose as little as possible from the standpoint of personal appearance when they lost an eye. The question of deformity was not always a secondary one. There were some patients, women perhaps, who looked upon the loss of an eyeball as a terrible catastrophe, from the standpoint of their personal appearance, and they would be willing to do almost anything to have that operation performed in such a way that no one would be able to detect the deformity. He had in mind just such an instance of a woman of middle age who had a sarcoma of the choroid, and naturally enucleation was urged. She delayed for quite a while simply because, as she expressed it, she would rather die than suffer the deformity, but she finally consented, and the eye was enucleated in the ordinary manner. Unfortunately she did have a considerable deformity. She had as good an artificial eye as he was able to get for her in Chicago, and notwithstanding that she had so much depression of the upper lid that she wept over her personal appearance.

However, he thought in this case he would try the injection of the paraffin using Beck's syringe, and solid paraffin. He did with most happy results. He made two injections. In the first injection the quantity was not sufficient, but after putting in enough paraffin it filled out the ball so that with the Snellen eye she had a very much improved appearance. He has done a number of these cases since with equally good results.

Before the Snellen eye came into common use, he had experience with the Mules' operation, and also the operation of Frost, where glass balls were introduced into Tenon's capsule. The original operation of Mules' of implantation of a glass ball into the scleral cavity, is successful, gave a beautiful result. The only objection to it was the fact that the operation must be an evisceration, and the general opinion seemed to be that evisceration was not entirely free from danger as far as sympathetic opthalmia was concerned at least, not to the extent that an enucleation was. There were very few oculists who would do an evisceration unless it was a necessity because of panophthalmitis or of injury where enucleation would be quite difficult. He thought that this general opinion was the correct one because notwithstanding the argument that sympathetic ophthalmia followed evisceration more frequently because he was not thoroughly done and uveal tissue was left in there, still the fact that it was left in or might be left in there, was certainly an argument against evisceration. He supposed that this was the reason why Frost and Lang abandoned Mules' operation and attempted to fill out the cavity after an enucleation by implanting a glass ball in the capsule of Tenon.

Another objection to both of these operations was the fact that the glass balls were extruded in many cases, in his experience. However, the glass ball remained in place in some of his cases, while in many they came out.

He had had experience with the implantation of fat, both from the gluteal region and from the abdomen. He attempted once to implant fat from the abdomen with the skin surface outward. The idea was to have a skin surface take the place of the cornea being sutured to the conjunctival edges, but the skin sloughed in his case and the fat also. He hardly knew whether all came out or sloughed away or not, but he did know the convalescence of the patient was so delayed that it did not seem to him was worth while.

It seemed to him, that the proper and safe method to give the best cosmetic result was to perform enucleation, unless it was in a case where evisceration was necessary, suturing the muscles and capsule and conjunctiva together, and then, if one could get the cooperation of the artificial eye maker or dealer and get a good fitting eye, one could usually get a satisfactory result, unless it was in a person who was very thin who had little or no orbital fat. But if one had that unsightly sinking in the upper lid, then the method of injecting paraffin beneath the conjunctiva was used.

PLASTIC CORRECTIONS IN SLIGHT ECTROPION TO RETAIN GLASS EYE

Dr. E. F. Snydacker said there were two things he would like to speak about. One was for teaching purposes how easy it was to take an ordinary wooden ball and demonstrate a plastic operation. By taking a wooden ball, using a few tacks, using a little chamois or leather to demonstrate almost any plastic operation around the eyelids.

The other thing he called attention to was a slight octropion where we sometimes had a little difficulty

in using a prosthesis. We had a plentiful supply for slight deformities of plastic skin on the upper lid. If there was slight ectropion on the lower lid, as in a burn or injury, where it was necessary to take out the eye, and this slight burn prevented the glass eye from fitting, by undermining the skin of the upper lid, by going in with a keratome on the outer angle, making a slight circular incision which he demonstrated, by dissecting adhesions in the lower lid and making a circular flap, one got plastic skin in the upper lid. When the skin was brought up into the lower lid the double purpose was served of getting ample plastic to supply the other lid and an orbicularis muscular effect in holding up the lower lid.

By going in at the border of the upper lid, cutting off the layers at the outer border, undermining the skin of the upper lid, making a slight circular flap, following the lines of the orbicularis, one could get all the plastic skin needed to correct the defect and hold it in place, because the natural line of cicatrization extended up against the pressure of the ectropion which was downward.

In a case of slight burns he was able to pull up the ectropion and not have the slightest deformity; the tongue-shaped flap helped the lower lid up and kept it up.

DISCUSSION.

Dr. George F. Suker could not agree with Dr. Mahoney in regard to evisceration. He would not do an evisceration under any consideration whatsoever. If an eye had to be sacrificed, then an enucleation should be done. This sclera, in an evisceration lost a large share of its blood supply, and because of this, frequently underwent degeneration with calcification. Such a scleral cup would then act as a foreign body and an irritable stump ensued, which must ultimately be removed. Such scleral cups often caused sympathetic irritation.

In 1898 de Schweinitz collected about a hundred cases of eviscerations and implantations of foreign bodies into Tenon's capsule or scleral cup and reported not one authentic case of sympathetic ophthalmia arising from the implantations. In quite a large number of cases sympathetic irritation had arisen from a simple evisceration, several cases of sympathetic ophthalmia had followed from Mules' operation. When one had to sacrifice an eye, sacrifice it in toto.

In the majority of enucleations the upper lid drooped because of the destruction of the sympathetic nerve supply coming from the lenticular ganglion which was often destroyed, but ought not to be destroyed. Following the severance of the sympathetic fibers to the upper lid a sympathetic ptosis resulted, one of the symptoms of Horner's symptom-complex.

There was one foreign substance which could be retained in the orbit and not be affected by the body juices, and that was lead free glass. Any other metal, be it gold, silver or platinum would be affected because the human body did manufacture hydrochloric acid, but it did not produce any acid that could affect lead free glass or silicon. A hollow glass ball (18 to 23 mm. in diameter) implanted into the capsule of Tenon and with the preservation of the lenticular ganglion, gave an ideal result, both as to fullness of socket and range of motility of shell. The sphere was never extruded after the stitches had been removed, provided no infection had been introduced and the sphere was of the proper size. A too large a sphere would cause tension on the sutures and they might give and allow the sphere to be cast out. Should this occur, repeat the operation under local anesthesia using a smaller sphere. The implantation of fat into Tenon's capsule was nice procedure and yielded a good result, but care must be exercised not to insert fat that had been crushed. Again, should fat mecrosis occur, as it sometimes did, then it caused a long delay in healing and the end result a shade better than a simple enucleation. As to paraffin, whether inserted as a sphere or injected when fluid into the prepared and sutured cavity, it would often disintegrate, disappear or cause a paraffinoma. In implantations of any kind sufficient covering for the object implanted, was an essential. The cone of the muscle should be brought over the sphere with a purse string catgut suture and then suture the conjunctiva over this. There was no doubt then but that it would be retained permanently. He had made many of these operations and up-to-date had not had any patients come back with the ball extruded and some cases were operated on fully twenty years ago. He had had to take them out when implanted into the scloral cup because of an irritable stump or so-called sympathetic irritation.

Every operation about the face had two purposes: First, therapeutic, and second socmetic. There was no necessity in doing simple enucleations on patients whether man or woman or child when one could do an implantation as an enucleation certainly justified the same. Sinking in of the upper lid was at a minimum with the preservation of the lenticular ganglion. After an enucleation in children, the bony orbit was not appreciably retarded in its growth. The apparent difference was due to the shrinkage of the orbital contents, and this shrinking was immeasurably counteracted by an implantation of any sort. Post-mortem measurements, years after the enucleation of children's eyes amply verified this statement.

He agreed with Dr. Woodruff that an eviscreation might he performed when we had no other choice ourselves. The injection of paraffin sometime subsequent to operation, was not a good surgical procedure, as any building up or filling out of the orbit could be done at the primary operation of enucleation.

The implantation of a glass sphere embedded in a layer of fat was the ideal implantation as it gave much more of a cushion for the shell to ride on. Implant this into the muscle cone, bringing the latter together with pursestring suture and then the conjunctiva over this stump. As to size of sphere to be used, usually one about three-fourths to four-fifths of the size of the eye enucleated was chosen—one ranging from 18-22 mm. in diameter.

The enucleation for an intraocular sarcoma was not a contraindication for an implantation. However, a careful inspection of the resected portion of optic nerve for any metastases was obligatory. Should such exist, then certainly an implantation was not justified. He had several patients who were still living, whose eyes were enucleated for intraocular sarcoma and in whom an implantation was made some fifteen years ago. There had been no recurrence up-to-date.

The only objection to these various operations of implantations was that they took considerable time before healing took place; however, the difference in time was no valid objection. For several years past, he had been using an ordinary tonsil snare to sever the optic nerve after the globe was freed of its muscle attachments. The hemorrhage was practically nil and this was of advantage as the subsequent reaction, edema and infiltration, was much less. Relatively speaking, he had very little edema to contend with after implantation. He said that if it were his misfortune to have an eye sacrificed, for any condition whatsoever, he would want an enucleation with an implantation into Tenon's capsule.

Dr. William E. Gamble, said he should dislike to see the society go on record as throwing overboard evisceration. He asked Dr. Suker what he would do in cases of panophthalmitis.

Dr. Suker replied that he had not had any cases of panophthalmitis, but if he did he would do straight enucleation.

Dr. Gamble believed that was poor surgery. He thought the life of the patient would be endangered.

It had been his experience that in cases where one had panophthalmitis, the other eye did not become involved. It was only in the slow, the chronic uveitis cases that one had involvement of the other eye, so that in cases of panophthalmitis the danger of opening up the sinus at the back of the eye and the very little danger of sympathetic disease made it, as he saw it, good surgery to eviscreate and poor surgery to enucleate.

Dr. Michael Glodenburg said that in cases of panophthalmitis he would neither eviscreate or enucleate. Panophthalmitis was nothing more or less than an abscess of the eyeball, hence the only surgical treatment indicated in an abscess was incision and drainage. Surgeons no longer cut out or curetted an abscess cavity in any other part of the body. It would seem to him that it would be contraindicated here more so than anywhere else. The impossibility of eviscreating and removing every vestige of choroid was apparent to every one. The opening of the many channels of exit in the acute stage, e. g. the venac vorticosae, the anterio ciliary veins, etc., was always a dangerous procedure. So far no one could tell if infection was or was not going to follow. In enucleation the same held true but probably more so. The danger of sympathetic ophthalmia and meningitis must be remembered. The only surgical treatment indicated, in his opinion, was wide incision of the cornea and that within the limbus so as not to open the canal of Schlemm. Keep this incision open wide to obtain free drainage, then after all the inflammatory symptoms had subsided and the wound had healed wait three or four weeks and then enucleate. Evisceration he was inclined to think, in panophthalmitis was a procedure of yesterday. He had seen such cases followed by serious results. He hoped Dr. Woodruff had had better luck than others in injecting paraffin. Very recently he had seen a case of paraffinoma of the face following injection of paraffin for a deformity of the nose. It would seem that paraffin for no particular reason at times had the perverse habit of spreading all over the face like a Meduasa. Personally, he was afraid of it. In regard to implantation he had never tried it. He had seen a number of failures following this procedure in the hands of capable men. In his service the old classic operation was done and uniformly fairly good results were obtained.

Dr. Harry S. Gradle agreed with Dr. Mahoney and disagreed with Dr. Suker. He believed absolutely in eviscreation of the eyeball except in intraocular tumor, which was an absolute contraindication to evisceration. The results of evisceration were so far superior to the results of enucleation, cosmetically speaking, that there was no comparison.

He was not particularly anxious to eviscerate in the type of iridio-cyclitis that might lead to sympathetic ophthalmia because he was not sure of the eviscreation. But the absolute removal of all of the intrascleral contents was as a sure preventive against sympathetic ophthalmis as was enucleation.

He agreed with Dr. Gamble that eviscreation in panophthalmitis was preferable to enucleation, but he agreed with him on a different basis than that of the danger of purulent meningitis. He agreed with him because he thought a better cosmetic result was obtained. If one would go back over the literature he would find there had been a few cases of meningitis following enucleation. The first case was reported by Von Graefe, but there was no autopsy. There had been eight autopsies of cases of meningitis occurring after enucleation, and in not one of these cases was there any continuity of the infectious process in any of the structures of the orbit. In other words, it would not have made any difference whether enucleation or evisceration had been performed, a metastatic meningitis would have occurred just the same.

For implantation he preferred fat. It was an autogenous substance that molded itself to the contour of the sclera or muscle cone. It was pliable. Its growth or nutrition could go on until the vessels could come in. It was a live implant. It became readily vascularized and maintained its vitality. It must not be implanted in the presence of an acute infection, such as panophthalmitis because it would be extended every time. In any other condition fat might be implanted after eviscreation or enucleation.

Dr. Frank Brawley, in support of those who had advocated evisceration, called attention to the work that had been done by Dimitry, of New Orleans, who had done eviscerations of various sorts for something like twenty years. His present operation, so far as he knew, gave the best stump that had ever been obtained. Briefly, he (Dimitry) dissected the conjunctiva as far as the equator and then it was sutured in that position. This left quite a large area of sclera exposed. He then made his incision, took off the cornea, including two or three millimeters of the sclera, and did evisceration. When he had stopped bleeding fairly well, he picked up the optic nerve and removed with Grafe knife a disc of sclera surrounding the optic nerve, which was then pulled up, and a portion of the nerve cut off. He used a gold ball which was implanted, and silk sutures were placed in the scleral wound in front. Removal of the nerve was not always necessary, but this operative gave him the drainage that was essential to retention of the gold ball.

Dr. Robert Von Der Heydt stated that three years after operation it did not make much difference whether eviscreation or enucleation had been done as the scleral tissue was practically gone after that time. Because of doing an evisceration he would not be afraid of sympathetic inflammation in the other eye. He used a large fenestrated scoop, such as the ear men used, for curetting the contents of the eye, removing all uveal tissue. He did like to see a free hemorrhage in removing the eye. It was nature's self-cleanser and had saved many a wound from infection and could be controlled by hot bichlorid at any time.

Dr. E. F. Snydacker said he had done many fat implants in the last five years, and he had had good results in some cases and indifferent ones in others. The fat implant prinwas very much the same as the Lanebone plating principle, if you got infection the fat was of low resistance, and you lost it easily. One had to do an absolutely immaculate operation, and had to put the fat in with absolutely no crushing and no handling. If one got it in right, as a plastic substance the orbit could be filled up beautifully. While some of it was absorbed, all of it was not. His failures in fat implants were due to low grade infections, and since following an improved technic he had had better results. He took the fat from the buttocks. He painted them with tincture of iodin, making an incision until the fat gaped, and took plenty of it. He did not touch it with his fingers but with instruments only. He had two assistants, one who retracted the wounds in the buttocks, the other retracted the capsule of Tenon so he did not handle the fat. In other words, nothing came in contact with the fat. The fat did not go through any handling after the primary cut from the buttocks, and he took more than he seemed to need because he expected a certain amount of absorption of the fat. This fat implant would fill out the orbit beautifully and a certain amount of it would be retained so that a large socket could be obtained.

In eyes in which there was or had been gonorrheal ophthalmia, he had seen some of them with slough of the cornea after this condition and a chronic process was set up after the acute process had subsided. In such cases he had been afraid of enucleation and had always eviscerated. He had had three such cases that he could remember, and there he thought evisceration was a far safer procedure in that it did not lead to any ill results, and he was certainly afraid of opening a communication with the meninges where an acute or chronic gonorrheal affair was present.

Dr. E. V. L. Brown said that evisceration did not remove the choroideal tissue extending along the vortex veins in their course through the sclera and a good many cases of sympathetic inflammation had followed evisceration. He took issue with Dr. Snydacker's statement that sympathetic inflammation was not to be feared in the perforating gonorrheal ulcers of the cornea. He reported such a case in the Archives of Ophthalmology in 1908. The defect in Descemet's membrane was really small in these cases and Fuchs contended small atria rather than large ones were found in sympathetic inflammation.

Dr. A. A. Hayden felt that it was well for us to remember even in enucleation done apparently early, when no inflammatory signs were present, occasionally a sympathetic inflammation in the opposite eye developed. This was true in a case that Dr. Gamble and he saw that nine years ago which was presented to the society. Dr. E. V. L. Brown examined and sectioned the eye. This young boy had a penetrating wound of the sclera, and on the ninth day after the injury enucleation was advised. This was done on the eleventh day with desection of one-quarter of an inch of the optic nerve. Healing was without event, but on the twelfth day, if he remembered

correctly, sympathetic inflammation developed in the second eye with the loss of that eye. If he understood Dr. Suker correctly, he said that sympathetic inflammation did not develop after a well performed enucleation. Te submitted this case, which was reported some years ago, as one in point.

Dr. Mahoney, in closing the discussion, said there were two or three points he would like to speak about, one of which was concerning thoroughness in the clearing out of the scleral cavity. He could see no reason why, where there was a wide open sclerotic cup, it could not be cleaned thoroughly if we took the time to do it. We then had the very best stump possible and it was not necessary to implant anything foreign to take its place.

He recalled a case that he saw of a man a few years ago who worked in the stockyards. He had sustained a frightful injury to one eye. The eye was enucleated the same afternoon, he thought about two and a half or three hours after the injury. He saw the man some four or five years later; he was totally blind in the other eye and had been for two or three years. He had every indication of having had sympathetic ophthalmia in the other eye. The speaker had never had a case of sympathetic ophthalmia in his practice and he had done evisceration in the class of cases he had mentioned for twenty-five years.

There was one other point he would like to speak about, and it was this: Atrophy or degeneration of the sclerotic. Within the last month he had a patient come to him whose eye was removed forty-two years ago by a very well known oculist in Dublin. This man had worn a shell eye all these years, occasionally removed it at night, but not often and the cavity kept gradually filling in with hypertrophied tissue until he could not wear an eye. He came to him to see if he could do something for him to restore the cavity so he could again wear an artificial eye. He attempted to do that; he dissected out a large amount of tissue and implanted some Thiersch grafts. When he went deep into the cavity he came upon the sclerotic; it was white and firm and of ordinary thickness and looked perfectly normal as a fresh sclerotic would today. He removed a piece for examination. While this case did not prove anything, still this man carried the sclerotic of the eviscerated eye for forty-two years without any change whatever. He was sure evisceration was the operation to do in the classes of cases he mentioned; it gave the best result.

Dr. Harry Woodruff stated that if one had ever attempted enucleation in purulent panophthalmitis with terrific swelling of the eyelids and orbital tissues, he could speak from bitter experience. He had been taught to eviscerate such an eye and through reading just such a discussion as we were having now he finally came to the conclusion he should enucleate and not eviscerate. So the next case that presented itself of panophthalmitis, one of those terrific cases, he enucleated the eye, and it was one of the most humiliating experiences he ever had. It was an exceedingly difficult operation; he made up his mind he would perform evisceration in such cases and not attempt to enucleate, since sympathetic ophthalmic was not apt to follow a purulent process. It was not the purulent inflammation that caused disaster; it was another kind. It might be associated with the pus process. These eyes were injured in which there was no pus present, but there was a different sort of inflammation—a proliferative uveitis. These were the dangerous eyes and one would be perfectly justified in not eviscerating such an eye. Dr. Suker was very definite and positive in his ideas as to what to do in thsee cases, but he had not been able in all these years to get others to take up this idea of his. He (Dr. Woodruff) attempted to get lead-free glass, but he did not know whether he got it or not. The glass did not stay in in many cases, although it did in others. The idea of fat implantation was better because fat was autogenous; it was a natural tissue of the body, and fat made the eye more prominent, so that if one could place an implant of fat in there and have it remain, it was the most natural sort of substitute for the eye; but for old cases where the atrophy of the orbital tissue was great, the injection of solid paraffin was safe and satisfactory.

FILARIA LOTA

Dr. William E. Gamble exhibited a specimen of filaria lota, and gave the following abstract of the literature on the subject.

The adult filaria lota has much of the appearance of a bit of catgut or violin string. In general the male is smaller and more slender than the female. The posterior end of the male is hooked or coiled and provided with spicules that project from the anal orifice.

Life History. The embryoes are discharged from time to time into the connective tissue of the host. They ultimately make their way into the blood stream and are carried in it about the body. Their further development depends on being drawn into the stomach of some suitable blood sucking ecto parasite that attacks the host. In the body of this second host the larvae develop or undergo changes and are introduced into the first host when the ecto parasite bites again. The intermediary in the filaria lota s not proven but the mangrove flies is suggested by Manson. This worm whose antics in the eye are so well known through descriptions of many observers, especially Argyll Robertson, was reported first from the West Indies and adjacent coast of South America. All the early cases were negroes, and probably brought from Africa. In Africa it is very common in certain localities, and in certain territories all natives and most Europeans are infected.

Locality. It can occur in any part of the body especially in subcutaneous tissue. In the eye it may be subconjunctival. It has been removed from the anterior chamber by Mercier, Bachelor and LeCompte. No record of it in lens or vitreous chamber. It has been seen and removed from the lids, and has been seen to wander back into the orbit passing out of view into the loose connective tissue.

The French physician Lota after his stay in Africa, and on his return to France, had oft recurring conjunctivitis. He had numerous attacks of stinging pain when he noticed one day a yellow irregular mass beneath the conjunctiva, a sensation as a foreign body lasted a couple of hours and then disappeared. In the evening the same symptoms, and the physician noted it moved from the temporal aspect of the bulbar connection and he watched it creep along under the conjunctiva into the inner canthus where it disappeared. Many interesting cases of the filaria have been described and many agents have been used to destroy them but with little effect.

SIDEROSIS BULBI

Dr. E. K. Findlay reported the case of a man, 39 years of age; occupation, structural iron worker. He came to the clinic March 9, 1920 on account of the failure in vision of the left eye. He gave no history of any particular injury or any previous inflammation. In November, 1919, he noticed a change in the color of the left eye, and spots began to appear before the eye. Vision failed rapidly this last month, until now he had only light perception. Examination showed a pronounced yellow color of the left iris, while the

right was a clear blue. The pupil reacted to light and accomodation and when the pupil was dilated concentric brown pigment deposits could be seen on the lens, which was entirely opaque. An x-ray showed a foreign body in the vitreous chamber behind the equator.

DISCUSSION.

Dr. Clark W. Hawley said the case reported by Dr. Findlay was interesting from the standpoint of one he had about twenty-five years ago, although the result was not so serious. He did work at that time for the Chicago Shipbuilding Company. This man was hit over the eye with a flying bolt; he went to his work the next day after a surgeon had sewed up the wound. There was no injury apparently to the eye. He had no trouble for over a year. He was sent to him then to have his pupil reduced. All of a sudden the pupil dilated quite extensively. He examined the eye and in the posterior portion saw a white mass in which there was a small piece of steel, evidently sterile. It had been encapsulated. However, there was considerable irritation set up, and he had a dilated pupil. He removed the piece of steel with the result of 20/20 vision.

He also reported the case of a man, who two or three weeks ago in handling some iron in some way was struck in the eye. He came to the speaker with a slight irritation of the conjunctiva. On careful examination he could find no entrance of the piece of steel into the eye whatever. He suggested to him an antiseptic wash and hot water and he applied it. The eye promptly cleared up for a day or two, and he came back with a mild iritis. Immediately he put the eye under atropin and the pupil dilated on the inner side. On the outer side it did not dilate at all. At the sclero-corneal junction he saw a little black streak which looked very much as though the iris was being pulled away from its junction with the sclera. The iritis promptly subsided, and he told the man undoubtedly there was a piece of steel in the eye. He would not have an x-ray picture taken at first, but later on one was made, and a piece of steel located at the junction of the iris with the ciliary body. Whether that black spot he saw was a piece of steel or not it was impossible for him to determine. The eye had quieted down. The tension was somewhat reduced on account of some slight exudate from the ciliary region. I had hoped to show this man but he absolutely refused to have anything done. He said he was going to take his chances and leave the piece of steel there. The speaker imagined it would be rather dangerous to the eye, but cases were known where the piece of steel might be perfectly aseptic and become encapsulatd like the one he had. The one he had would not have had irritation if the encapsulated piece of steel had not been split in this way.

Dr. Hawley reported the case of a woman, 35 or 40 years of age, who ever since childbirth had two largely dilated pupils without any pupillary reaction whatever. About three weeks ago all of a sudden the left pupil contracted. She had now a perfectly normal pupil in the left eye and with ordinary reaction of the iris. She came to him wishing that he might dilate that pupil so that it would resume its original condition and position because she was afraid something was wrong. He told her to go home and pray, or to use Christian Science, that then the other pupil might do the same thing. He would not be surprised at all at the end of a few months to find that her right pupil would be the same as the left and that she would have two normal pupils.

SIDEROSIS BULBI

Dr. William A. Mann reported briefly two cases similar to those that had been reported. The first case came to him for treatment of iritis, the patient having been under treatment for that condition. He found there was marked siderosis of the iris. He advised an x-ray, which was taken, and found a small foreign body just below the lens and apparently in front of it. The lens itself was not injured. Application of the magnet finally succeeded in pulling it out from below. The iris was stretched across the anterior chamber, but finally pulled loose. When it was removed with corneal section he used a small magnet to extract the foreign body, and the man recovered fairly good vision.

The second case was interesting because the man came to him and said, "My wife says my eyes do not look right." There was marked siderosis and a dilated pupil. He asked the man if he had been using any drops or had received any injury, and he stated that about four months ago he got a piece of steel in the eye and the foreman took it out. He told him that it looked to him as if there was a piece of steel in the eye, although he could not find the point of entrance, but down low on the iris there was a black spot. The pupil contracted under eserin, but did not show anything more. An x-ray was made and it showed a piece of steel in the same position as in the other case, below the lens at the root of the iris and in front of the lens, and he suggested that the magnet be used. The patient was taken to the hospital, the giant magnet applied, and at first there was no response, but by repeated applications of the full current it finally began to show a little bulging. Finally it was removed by the magnet. There was no congestion following the operation. Vision was 20/20, and two or three weeks afterward the pupil was down almost to normal. Paralysis of the sphincter was something new to him. There was no iritis, no inflammation, and hence this was rather unusual in his experience.

DISCUSSION.

Dr. S. Luther McCreight stated that during the past four years he had seen thirteen cases of siderosis, and in only two of them would the pupil react. Vierhoff had pointed out that in these cases of siderosis bulbi there was a deposit of some nature in the sphincter muscle. There had been a good deal of controversy as to why these pupils did not react. Many of these cases had inflammation. From a pathologic standpoint, there was a great deal to be done yet in regard to these cases. Certainly, in all the cases he had seen the pupils were immobile. All but two of the cases he saw had inflammation. He thought probably the nature of the foreign body had something to do with it. He thought it had been pretty well proven that if one put sterile glass in the vitreous one got a sterile abscess. There was a deposit about the foreign body.

Dr. Michael Goldenburg reported the case of a man, who received an injury to his eye about two years ago to which he paid little or no attention until very recently when he noticed that his vision in the eye was failing. After dilatation of the pupil with a mydriatic, he found a cataractus lens with typical siderosis spots all around the anterior surface of the periphery of the lens. Radiographs located a piece of metal 1x2 mm. in diameter back of the equator and in the vitreous. After the usual preparation the giant magnet was applied, but the patient did not experience any pain or pull on the make or break of the current. He was a little skeptical at first as to the presence or kind of metal present, but then decided to make a triangular flap incision through the sclera for direct attack. After accomplishing this, he inserted a small curved end piece with a hand magnet and removed the piece of metal without any further difficulty.

Dr. Findlay asked Dr. Goldenburg how long the piece of steel was in the eye.

Dr. Goldenburg replied two years.

(To be continued)

ST. CLAIR COUNTY

OUR NOVEMBER MEETING

The regular monthly meeting of the St. Clair County Medical Society was held in the Chamber of Commerce Rooms, Murphy Building, East St. Louis, Illinois, November 11, 1920, 8:00 P. M., with fifteen officers and members present.

Mr. Bottom appeared before the society and explained the working of the Physicians' and Surgeons' Telephone Exchange.

The society indorsed the establishment of an exchanged in East St. Louis.

Dr. A. M. Aszmann was elected to membership.

Committee on Clinics reported and asked for further time.

Moved by Dr. Foulon, Seconded by Dr. Wiggins that a committee be appointed to ascertain as to the number of patients attending clinics in St. Louis and to formulate a plan as to the best way that the society could organize and control local clinics.

Dr. Wiggins introduced the following resolution:

Resolved, That the East St. Louis branch of the St. Clair County Medical Society hold a special meeting on the 22nd of November, at which time they shall consider the question of expulsion of members who have not attended the last four meetings, on account of their being a detriment to Progressive Medicine.

Moved and seconded that resolution be adopted.

Moved by Dr. Wiggins, seconded by Dr. Arbuckle, that invitation be extended to the Belleville branch to attend the special meeting on November 22nd.

The scientific program was postponed until next meeting.

No further business appearing, the society adjourned.

WALTER WILHELMJ, Secretary.

Personals

Dr. Julia Holmes Smith has returned to Oak Park after several months spent in California.

Dr. David O'Shea is house physician at the new Hotel Somerset at Sheridan Road and Argyle street, Chicago.

Dr. Chas. P. Colby of Mt. Carmel had a miraculous escape when his auto was crushed by an Alton freight train recently.

Dr. I. G. Hubbard has resumed practice in Ohlman after spending the summer in the Northwestern states.

Dr. Harriet B. Ward of Berkeley, Cal., has recently visited friends in Elgin, where she was in practice before going to California.

Dr. D. A. K. Steele addressed the students at Champaign, November 10, on the "Genesis of a Great Medical College."

Dr. F. E. Tulley, formerly of Granite City, has transferred his membership from our society to the Los Angeles Medical Society.

Dr. Wm. Arthur Clark, after ten months as one of the consultants in orthopedic surgery at the Mayo Clinic, has located in Pasadena, Cal., with practice limited to orthopedic surgery.

Dr. and Mrs. R. D. Luster, of Granite City, spent six weeks on a vacation trip to Denver and Colorado Springs. They went by automobile and covered 2,800 miles.

Dr. E. W. Zook, who has been in the state hospital service in Illinois for several years, has been transferred from the Jacksonville State Hospital to the Peoria State Hospital.

The honorary degree of Doctor of Science was conferred on Dr. Henry Baldwin Ward, professor of zoology at the University of Illinois, by the University of Cincinnati on the occasion of the centennial anniversary of its medical college.

In connection with the centennial celebration of the founding of the Medical College of the University of Cincinnati, the honorary degree of Doctor of Laws was conferred on Dr. Ludvig Hektoen, and the degree of Doctor of Science on Drs. Dean D. Lewis and Edward Oakes Jordan.

At the meeting of the Association of the American Medical Milk Commission held at Louisville, Ky., Nov. 15, 1920, Dr. J. Warren VanDerslice of Oak Park, Ill., was elected president and Dr. R. R. Ferguson of Chicago was elected secretary-treasurer of the Association for the coming year.

News Notes

NEW OFFICERS OF THE TRI-STATE DISTRICT MEDICAL SOCIETY

Honorary President of Clinics—Dr. George W. Crile, Cleveland, O.

Honorary President—Dr. James R. Guthrie, Dubuque, Iowa.

President—Dr. George V. I. Brown, Milwaukee, Wis.

President-elect—Dr. John E. O'Keefe, Waterloo, Iowa.

Vice-President, Wisconsin—Dr. Joseph S. Evans, Madison.

Vice-President, Iowa—Dr. Walter L. Bierring, Des Moines.

Vice-President, Illinois—Dr. Edwin P. Sloan, Bloomington.

Managing Director—Dr. William B. Peck, Freeport, Ill.

Secretary-Treasurer—Dr. Domer G. Smith, Freeport, Ill.

BOARD OF DIRECTORS

Dr. John Van Reed Lyman, Eau Claire, Wis.
Dr. Wilson Cunningham, Platteville, Wis.
Dr. Arthur G. Sullivan, Madison, Wis.
Dr. Donald McCrae, Jr., Council Bluffs, Ia.
Dr. John F. Herrick, Ottumwa, Ia.
Dr. Henry G. Langworthy, Dubuque, Ia.
Dr. Edward Fiegenbaum, Edwardsville, Ill.
Dr. Clifford U. Collins, Peoria, Ill.
Dr. James McDonald, Aurora, Ill.

PROGRAM COMMITTEE

Dr. Horace M. Brown, Milwaukee, Wis.
Dr. Don Deal, Springfield, Ill.
Dr. Tom B. Trockmorton, Des Moines, Ia.

—Excavation for the Victory Memorial Hospital at Waukegan has been started.

—Radium to the value of $13,000 is said to have been thrown into a toilet bowl by a patient in Utica who thought it was "too hot." The radium was recovered from the sewer.

—The increase in cases at the Cook County Hospital has impelled the opening of the new wing of the Municipal Contagious Diseases Hospital.

—Construction work has been begun on the University of Illinois Medical School and Hospital, which is to occupy a site of 10 acres which has been the National League Baseball Park, and is in the vicinity of Cook County Hospital.

—At a meeting held recently in Hotel Sherman for the purpose of standardizing the practice of medicine and surgery, the Chicago Society of Industrial Medicine and Surgery was organized. Dr. Clarence W. Hopkins, Evanston, was elected president.

—The meeting of the Elgin Physicians Club, November 8, was enlivened by the presentation by Dr. J. F. Bell of a portrait of President-elect Harding to Dr. J. G. Schneider, an ardent Democrat. It was in retaliation for a portrait of President Wilson "wished on" Dr. Bell four years ago.

—The great demand for X-Ray and Physio-Therapy equipment has made it necessary for the McIntosh Battery & Optical Co., now at 217 N. Desplaines St., Chicago, one of the oldest firms in this line, to erect a new building to provide for the unusual growth of the business.

—The Chicago Gynecological Society offers an annual prize of $100 for the best paper presented during the year. Nonmembers as well as members are eligible for the competition which will be limited to those authors who have announced their intention to compete. Those interested should communicate with the secretary, Dr. Joseph L. Baer, 104 South Michigan Avenue.

—At the meeting of the Central Illinois Medical Association in Pana last month the following officers were elected: President, Dr. H. E. Monroe of Shelbyville; vice-president, Dr. A. L. Morrison, Decatur; treasurer, Dr. L. L. Morey, Vandalia; secretary, Dr. F. A. Martin, Pana; censors, Drs. J. W. Patterson, Oconee; G. E. Bullington, Nokomis, and G. N. Kreider, Springfield.

—The Health and Sanitation Exposition held at the Coliseum in Chicago, November 24 to 29, was a pronounced success, both in the completeness and excellence of its varied features and in the enormous crowds that taxed the capacity of the building. Probably no "Health Show" has ever demonstrated in an equal degree the interest the public feels in matters affecting the health of the individual and the community.

—At the meeting of the Southern Illinois Medical Association held in Carbondale last month, the following officers were elected: President, Dr. C. E. Eisele of East St. Louis; First vice-president, Dr. H. C. Moss of Carbondale; Second vice-president, Dr. Heber Robarts of Belleville; Secretary-treasurer, Dr. A. B. Capel of Shawneetown; Assistant Secretary-treasurer, Dr. C. W. Lilley of East St. Louis. The 1921 meeting of the association will be held in Belleville.

—It is reported that through activities of the Department of Registration and Education the following convictions were obtained: Karl J. Hawkins, a chiropractor at Bluffs, fined $35; Lucius J. Love of Danville and Peter Walker of Chicago, chiropractors; Yin Joe Lee, Chicago,

fined $25 and costs; Mrs. F. Zientarske, Chicago, a nurse, fined $25 and costs; Willie Greer of East St. Louis, fined $100 and costs—all for practicing medicine without a license. The license of Earl C. Rice, licensed among "other practitioners," was revoked for unprofessional conduct.

—The National Research Council has established a Research Information Service as a general clearing house and informational bureau for scientific and industrial research. This "Service" on request supplies information concerning research problems, progress, laboratories, equipment, methods, publications, personnel, funds, etc. Ordinarily, inquiries are answered without charge. When this is impossible because of unusual difficulty in securing information, the inquirer is notified and supplied with an estimate of cost. Much of the information assembled by this bureau is published promptly in the *Bulletin* or the *Reprint and Circular Series* of the National Research Council, but the purpose is to maintain complete up-to-date files in the general office of the Council. Requests for information should be addressed, Research Information Service, National Research Council, 1701 Massachusetts Avenue, Washington, D. C.

Marriages

Arthur Herman Fahrner, Joliet, Ill., to Miss Agnes Coulehan of Austin, Ill., October 16.

Samuel J. Ginsburg to Miss Yetta Weiss, both of Chicago, recently.

John Riley Merriman, Springfield, Ill., to Miss Dorothy Carroll of New York, October 27.

Harold Alfred Ramser to Miss Mildred E. Jackson, both of Chicago, October 16.

Maurice P. Seidner to Miss Bertha Reisman, both of Chicago, recently.

Frank Walls Young, Chicago, to Miss Ruth Rendleman of Cairo, Ill., October 16.

Deaths

James B. Stetson, Sheffield, Ill.; Rush Medical College, 1870; aged 75; also a druggist; died September 18.

Edwin W. Cook, Rock Island, Ill.; State University of Iowa, Iowa City, 1884; aged 63; a Fellow, A. M. A.; died October 14.

Benjamin Frank Hockman, Sumner, Ill.; Medical College of Ohio, Cincinnati, 1893; aged 55; died October 8.

Karl Herman Schmidt, Chicago; Northwestern University Medical School, 1911; aged 31; a Fellow, A. M. A.; died October 30, from pneumonia.

Charles Ives, Pecatonica, Ill.; Chicago Medical College, 1888; aged 58; a member of the Illinois State Medical Society; died October 11, from cerebral hemorrhage.

John Dexter Andrew, Chicago and Evanston, Ill.; Chicago Medical College, 1878; aged 66; for forty-three years assistant chief surgeon of the Chicago and Northwestern Railway; died November 6, from myocarditis.

Richard H. Lull, Evanston, Ill.; Rush Medical College, 1883; aged 60; assistant chief surgeon of the Chicago, Milwaukee and St. Paul Railroad; died November 11, from angina pectoris.

Isaac M. Martin, La Harpe, Ill.; Hahnemann Medical College and Hospital, Chicago; aged 67; editor and founder of the *Quill;* died suddenly, October 18.

Charles C. Miller, Marengo, Ill.; University of Michigan, Ann Arbor, 1856; aged 89; a well-known apiarist, editor, and author of several books on bee culture; died about September 7.

Edmund Calvin Park, Manning, S. C. (license, Illinois, 1877); aged 83; for nearly half a century a medical practitioner of Flora, Ill.; died at the home of his daughter in Manning, October 8.

Herman John Halvorsen, Chicago; Chicago College of Medicine and Surgery, 1912; aged 33; a Fellow, A. M. A.; Lieutenant, M. C., U. S. Army, and discharged Jan. 4, 1919; died October 21, from acute endocarditis.

William Harold Stutsman, Chicago; Rush Medical College, 1915; aged 34; a member of the Illinois State Medical Society; Captain, M. C., U. S. Army, and discharged June 13, 1919; died in Seattle, Wash., September 22.

William D. Carter, Nashville, Ill.; Rush Medical College, 1862; Chicago Medical College, 1866; aged 83; a member of the Illinois State Medical Society; assistant surgeon of the Forty-Fourth Volunteer Infantry during the Civil War; died October 27, from pneumonia.

Thomas J. Whitten, Peoria, Ill.; Jefferson Medical College, 1867; aged 76; a member of the Illinois State Medical Society; a veteran of the Civil War; for 40 years a medical practitioner in Montgomery County and the past 13 years in Peoria; died October 31, from appendicitis.